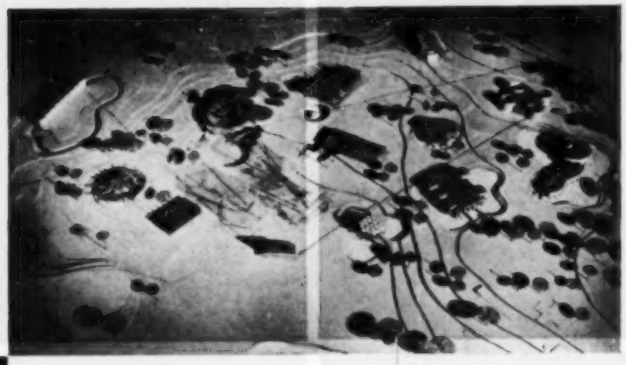
PROGRESSIVE ARCHITECTURE

display techniques



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october 1952

jaycee headquarters

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PROGRESSIVE ARCHITECTURE

pa

October 1952

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John Goddard Belcher: 1904-1952

It is with a deep sense of personal loss—as well as a conviction that the world has lost a good citizen, the publishing fraternity an able and upright colleague, and the design professions an active friend—that PROGRESSIVE ARCHITECTURE announces the death of its publishing director, John Goddard Belcher.

Jay died, August 30, in the crash of a private seaplane at Boothbay Harbor, Maine, where he had been vacationing with his family. He was forty-eight years old, intensely and fruitfully active in many things besides his architectural publishing interests. He believed in the need—and the pleasure—of taking a true part in community affairs. The Darien, Connecticut, area in which he lived profited by his having been, among other things, an elder of the Noroton Presbyterian Church and the Chairman of the local School Building Committee.

Jay Belcher believed sincerely that the architectural and related design professions deserve to have an adult, forthright, and useful magazine devoted solely to their interests—and that they will support such a journal. It is an unusual publisher who can maintain his contacts with advertisers, control the circulation activities, encourage and lead the editorial program, and at the same time become close friends with many readers and contributors. Jay Belcher did all those things: it has been heartwarming to read the letters that have come, not only from friends and competitors in the publishing field, but also from the many architects who were his intimate personal friends, saying in many ways that architecture has lost a driving personality who worked hard and intelligently in its interests. It is in a sense sad, but a fitting tribute to his activity, that the week after Jay's death the latest A.B.C. audited circulation figures arrived, indicating that under his direction P/A had not only reached the largest architect circulation, architectural-engineering circulation, and total professional circulation that any architectural magazine has ever attained—but had topped its competitors in each of those categories. He would have loved to see those figures!

We here at Reinhold, particularly the P/A Staff, pledge ourselves to continue and develop further the program that Jay directed—the publication of a magazine devoted to furthering in every way the contribution that architectural and engineering design can make to Society. We know that advertisers and readers alike will continue to work with us to this end, profiting always from the contributions made by Jay Belcher.

newsletter

Prefabrication of houses is gaining a new lease on life. Apparently redesign by Top-Flight Architects of some models, a restudy of manufacturing and merchandising methods by a number of manufacturers, and a new demand on the part of the armed forces (which makes retooling possible) may mean a spurt in this aspect of housing in 1953. Actual figures on the manufacture and sale of prefab houses during 1952 (so far) indicate a slight upturn in this Industry.

The problem of Big-City Motion Picture Theatres which have closed, presumably due to the effect of television on home entertainment, has been worrying the real estate fraternity for some time. Figures indicate that about one third of Chicago's movie houses, one fourth of the theatres in the Detroit area, and lesser percentages in Philadelphia, St. Paul, Minneapolis, Miami, and even New York City, have been closed in the last few years. Remodeling of these theatres into such income-producing commercial structures as chain-stores, other types of retail shops, skating rinks, bowling alleys and perhaps even churches, may produce a surprisingly large number of Architectural Commissions in the near future.

Southern California architects have completed the first 26 weeks of a successful television program called "California Life." The local A.I.A. chapter will pick up the program again next January for another 26 weeks. Scheme for the show was very simple — viewers were taken into outstanding houses and were shown around by the Architect, with the Owners of the houses also on the program.

Washington University, St. Louis, announces that Joseph D. Murphy, Dean of the School of Architecture, is resigning to devote all of his time to private architectural practice. Kenneth E. Hudson, who has been Dean of the School of Fine Arts, will now head both schools. It is interesting that this move towards integration of the various design courses within a university is similar to a program announced recently by Western Reserve University, Cleveland, Ohio, and it seems to be following a pattern which may influence other colleges in the country.

Federal Civil Defense Administration has issued a manual for the economic design of buildings under atomic blast. The structural design suggested results in a windowless structure which will be somewhat deformed but otherwise left intact, under anything except a direct hit. The idea is that this basic windowless structure can be the Core for buildings in which otherwise conventional structural systems may be used. It would thus serve as a huge shelter area, correctly designed, within the building. Booklet may be bought for $1 from U.S. Government Printing Office, Washington 25, D.C.

Both City Administrations and Businessmen are worried about the problems of private automobile traffic. Numerous schemes to solve parking shortages and road-jams, by substituting mass transportation media, have not worked out since the war. There has been a very large upswing in the number of private cars driven into the central city in almost every part of the country, while at the same time there has been a drop in the number of people using mass transportation media. Whatever the reasons that may be ascribed for this it seems to be true that neither popular education nor clogged streets will stop the citizen from using his own automobile, in preference to buses or other vehicles. It has very obviously become a problem which the City Planner must solve in a realistic manner.

Rolling Steel DOORS

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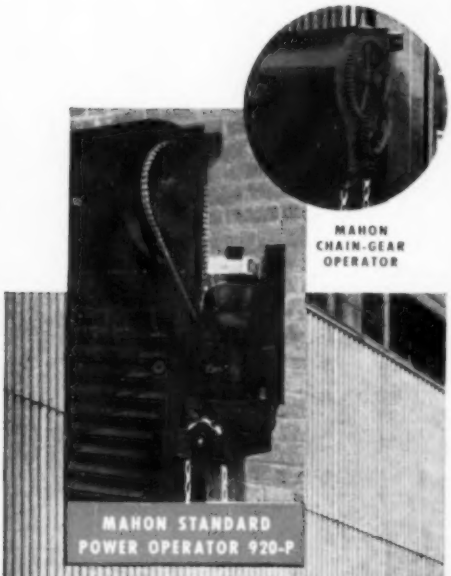

Illustrated below you see six Mahon Power Operated Rolling Steel Doors installed in the openings of a combination truck and rail shipping dock. The power operators are located inside with through-the-wall drives. A continuous hood over the roller shafts and operating mechanisms extends the entire length of the six truck openings. This is another typical installation where no other type of door would serve the purpose—because, the vertical roll-up action of a Rolling Steel Door eliminates overhead obstructions—occupies no usable space inside or outside the opening. All-metal construction provides permanence, greater security, and assures you a lifetime of trouble-free service. When you select Rolling Steel Doors, it will pay you to compare both specifications and price tags . . . you will find that the hot-dipped galvanized curtain slat material that goes into Mahon Rolling Steel Doors is chemically cleaned, phosphated and treated with a chromic acid solution to provide paint bond, and that the protective coating of synthetic enamel is baked on at 350° F. prior to roll-forming. This is just one of the extra value features of Mahon Rolling Steel Doors. See Sweet's Files for complete information including Specifications, or write for Catalog G-53.

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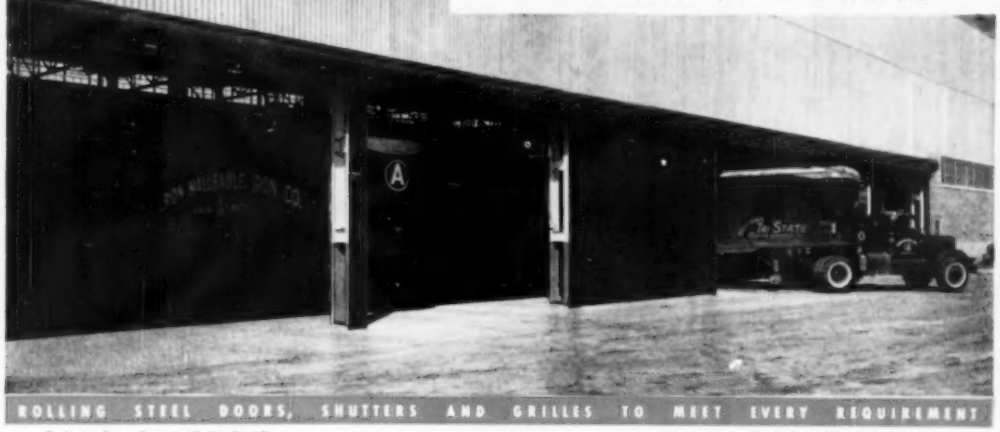
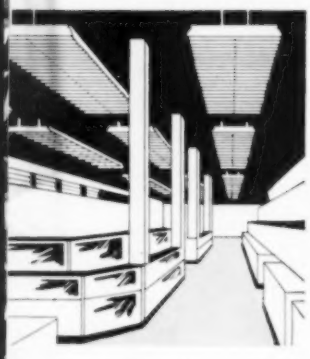


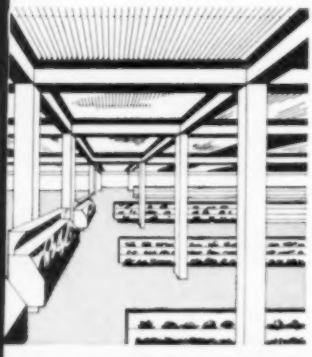
ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

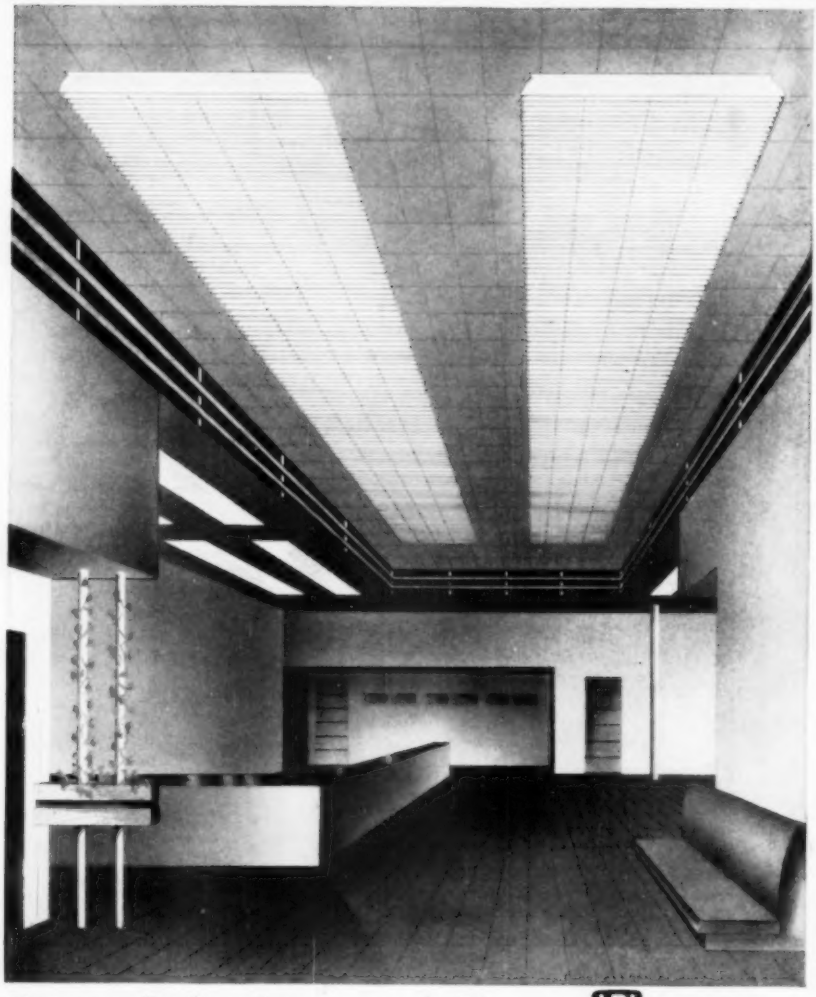
Six Mahon Power Operated Rolling Steel Doors 18'-7" x 14'-0" installed in a new building built by the Austin Company for the Albion Malleable Iron Works, Albion, Michigan. Another Mahon Power Operated Door 17'-0" x 22'-0" is installed in a railroad opening in the end of this enclosed loading dock.

MAHON

GREAT NEW ADVANCE IN







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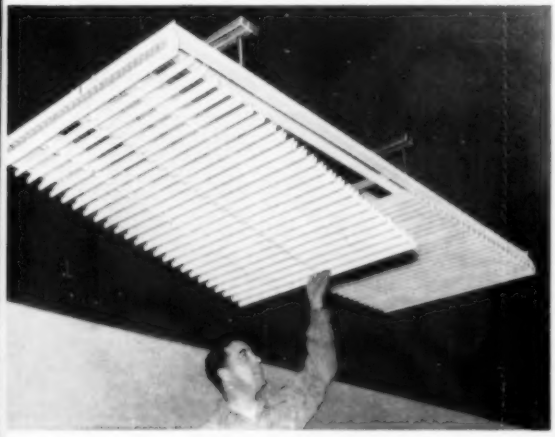
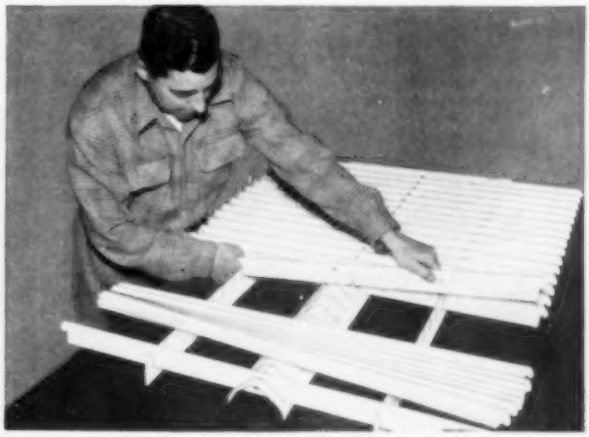
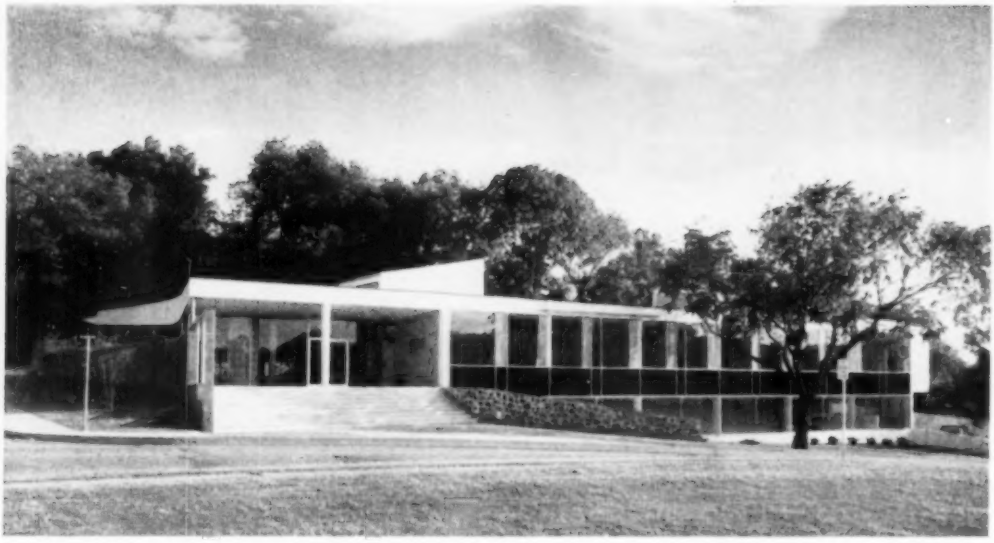
For information on other LPI fixtures, see our Catalogue in Sweet's File

SEE OUR CATALOG IN SWEET'S FILE







IN THE MODERN Jaycee headquarters at Tulsa, Oklahoma, Servel *All-Year* Air Conditioning maintains indoor temperature throughout within one-half degree, plus or minus, all year long. Architect: H. A. Morris, A.I.A.

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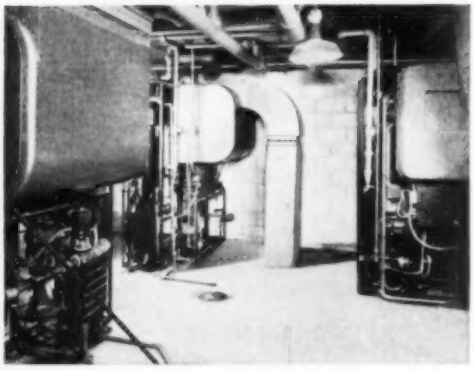

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All-Year Air Conditioning by Servel has solved a complex temperature control problem in the handsome Junior Chamber of Commerce building at Tulsa, Oklahoma.

Large window and glass brick areas make effective temperature control extremely important. Otherwise the interior would be uncomfortably hot on the sunny side or uncomfortably cold on the shady side.

This meant that winter *and* summer air conditioning, flexible enough to meet these conditions, was a necessity.

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Servel
AIR CONDITIONING EQUIPMENT

of, by, for architects

Dear Editor: Think your magazine is doing a swell job. Each month seems to bring new features and opens fields related to our profession previously overlooked or minimized by our professional publications. Yours is truly a publication of architects, by architects, and for architects.

HARRY M. DENYES, JR.
Birmingham, Mich.

the absolute value

Dear Editor: The article by Sibyl Moholy-Nagy is interesting to me because I totally disagree with her. I believe that the really good design follows the definite principles of absolute values and not relative values as she seems to imply. The absolute value in actual design is the structure itself, and the structure itself is not affected by any contemporary arts. It is the result of a combination of the scientific and intellectual processes and the intangibles resulting from spiritual understanding. Any architectural design affected by contemporary sculpture or painting is of minor value and follows a fashion, just like long skirts today and short skirts tomorrow.

Architecture stands on its own legs and only that kind of architecture survives.

ANTONIN RAYMOND
New York, N. Y.

construction system

Dear Editor: In July 1952 P/A you published for us an excellent description of the HB System of beam construction which we are introducing in this country.

Since publication of that item we have received many promising inquiries from engineers, architects, lumber and building firms, etc. Your magazine has been the largest and most encouraging boost to our efforts thus far, and we greatly appreciate the contacts it has made possible for us.

Two weeks ago we even received a letter from a major in the Air Force in Korea, who saw the item in P/A and who wants to use the beams for some hangars he has to build there, with limited materials and building supplies. We hope that we can help him out and thereby indirectly aid our country's defense efforts in Korea.

We will keep you informed of our progress in introducing the HB System in America. Thanks again for your invaluable assistance.

JOHN M. DENNERLEIN
Queens Village, N.Y.

well, it turned up

Dear Editor: As the publicity agent who sent you the NuTone fan photo you used in your July P.S., I received quite a kick out of your copy on the subject.

The idea of cheesecake for industrial publications is always open to debate. Of six companies that I represent, only NuTone goes in for pin-ups. However, the photos always seem to turn up in print. Oh, female form divine, tell me more of your product!

Anyway, if it makes an item for you, so much the better.

WADE ATKINSON
Dayton, Ohio

much neglected

Dear Editor: You are to be commended for the enlightened and cogent comments in your P.S. for June, concerning the much neglected and abused field of specification writing, and especially the absence of educational recognition of its importance, indeed its indispensability in the architectural profession.

It might be of interest to know that we have been planning during the coming year to conduct a survey of the type and extent of educational facilities devoted to this subject throughout the country.

JOSEPH A. McGINNIS, President
Metropolitan New York Chapter
Construction Specifications Institute

heat-loss computation

Dear Editor: I have read with interest the article entitled "Design Data for Radiant Glass-Panel Heating," by William Anderson, in August 1952 P/A and desire to offer the following comments on this article.

In paragraph three of this article the author makes some statements which I do not believe are correct, for the following reasons:

1. The heat loss in any structure is constant, regardless of the type of heating system to be provided and therefore the method of figuring the heat losses should be the same. The fact that electric panels are used does not alter the fact that there are certain air changes occurring in structures which cannot be overlooked. The method of calculating heat losses should be in accordance with the procedures set up by the American Society of Heating and Ventilating Engineers.

(Continued on page 10)

international challenge

by Sigfried Giedion

Zurich, Switzerland — So far United Nations and its predecessor, League of Nations, have not been fortunate with their architects, either for the League Palace at Geneva or for the United Nations Headquarters in New York. One might also put it the other way around —and say that architects have had little luck with the United Nations. The reasons for this state of affairs lie considerably deeper than is outwardly apparent. They can be found in the lack of contact between client and architect that has been widening during our period, which becomes particularly obvious when the task is the architectural realization of a center for social or administrative purposes.

In 1927, the solution of the Palace of League of Nations was attempted by international competition. Today there is no question that Le Corbusier's project was the only one among the 377 schemes submitted which really took into account the then changing architectural concepts. But, in 1927, the politicians, in particular the French who had the decisive word in those days, hankered after a Beaux Arts building. The dreary result was a compromise which "lifted" Le Corbusier's (rejected) open ground plan and then buried it beneath outworn academic pomp.

The position in New York, after the end of World War II and at the founding of United Nations, was quite different. On this occasion, ten architects from the four corners of the earth were invited to come together and make preliminary sketches. In 1947, all were working in the same room of Rockefeller Center in New York, each upon his own project. Among them was again Le Corbusier. The Director of Planning was then, and remained, Wallace K. Harrison. This is not the place* to speak of the difficulties that resulted — except for one comment. Now the nearly completed building complex in the heart of Manhattan shows that there is no longer any question about the employment of contemporary means of expression, but the critic cannot abstain from noting that the felicity that breathed from the entire concep-

(Continued on page 146)

* *Discussed at length in P/A during 1946. See "A World Center for the United Nations," by Lewis Mumford, page 70, August 1946 P/A.*

THE GREAT

American Can Co., Milwaukee, Wis., with almost a half-million sq. ft. of Federal-Featherweight Precast Channel and Nailing Concrete Slabs. Archt. Owner; Contr. Turner Constr. Co., New York, N. Y. This is one of many American Can installations.

VIEWS

(Continued from page 9)

2. The statement that radiant-glass heating does not dry out the air and that higher humidities are obtained is incorrect. In any structure, the inside relative humidity, at 70 F, is dependent upon a number of variables such as: (a) outside temperatures; (b) internal moisture gains from cooking, bathing, washing, human occupancy, etc.; (c) tightness of building construction and rate at which moisture is transmitted through the building construction.

For example, if it were assumed that in any given structure there were no internal or external moisture gains or losses, the inside relative (and absolute) humidity would be the same at any given time, regardless of the type of heating system. There is no engineering basis for assuming that one type of heating system dries out the air more than any other.

The fact that when electric heating is used, the structure is heavily insulated and provided with storm sash or double glazing, does permit higher inside relative humidities to be maintained (without condensation on windows, walls, etc.) would be true for heating systems of other types.

RUTHERFORD L. STINARD, Consulting Engineer
51 E. 42 St.
New York 17, N.Y.

Dear Editor: *In reply to Rutherford L. Stinard's letter of August 20:*

The heat loss of any structure is composed of a transmission loss plus an infiltration loss. The total calculated heat loss for any structure varies as the engineer's method of calculating infiltration. Some use the "crack length" method, some use the air-change method, and still others add exposure losses to each of these methods; the transmission losses in most cases being comparable.

This type of computation is used for all conventional heating systems, however, in a radiant system this computation is not applicable. A test conducted in a test house indicates that the transmission coefficient is a variable. Extensive research is now being conducted to determine its validity and to obtain figures which may be used in the field.

T. Napier Adlam, in his book Radiant Heating *(Industrial Press), also indicated, with a curve, that the "U" is decreased with the use of radiant heating. As an example, the "U" factor for single-glazed glass is 1.13, but applying this to Adlam's curve the "U" factor is reduced to .95, with records showing the factor as low as .5. There is a reduction of heat loss from five to ten percent or even more.*

From tests conducted on a test house having a calculated heat loss of 33,000 Btu for 70 degrees temperature difference (standard calculation methods were employed), the observed results were 2000 Btu less. This lower loss was attributed, at first, to duct losses—heat wasted to outside of building, instead of delivered into living spaces. A recheck of the calculations showed that the infiltration loss calculated was 3000 Btu more than the actual test results. Upon rechecking the calculated figures with the tested figures, an error in the standard methods of figuring infiltration arose as the only source from which the deviation might occur. Therefore, the standard figures for infiltration do not necessarily hold true for a radiant heating system. This means a 5000 Btu loss could not be found and cannot be attributed to duct losses.

Therefore, the transmission loss must have varied by 5000 Btu. Since the area and temperature difference were constant, the only variable must be the "U" factor.

The equations for radiant heating are very

(Continued on page 12)

LEVER HOUSE

SKIDMORE OWINGS & MERRILL, Architects

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In full compliance with the New York City Building Code, all the solid lumber core paneling and wainscoting in the Executive Office on the 21st floor, have been rendered *permanently non-combustible* by "PROTEXOL A" complete impregnation treatment. This clean, odorless treatment maintains the natural beauty of the wood and meets Underwriters' Laboratories and other requirements. Inquiries invited.

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STRUCTURAL CONCRETE PRECAST ROOF SLABS

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It is significant that so many nationally known buyers of both industrial and non-industrial roofs have so often placed repeat orders for more and more Federal Roofs.

Their roof records must be convincing . . . must show no indication of rot, rust or disintegration . . . no expense whatever for maintenance . . . long years of lasting strength and firesafety . . . the *overall low cost* which in the long run is the most important factor of all. CATALOG ON REQUEST.

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SALES OFFICES IN PRINCIPAL CITIES

VIEWS

(Continued from page 10)

lengthy and are complicated by the assumptions that have to be made. Experience on jobs completed and installed during the last five years have proven that the standard transmission figures as published by the A.S.H.V.E. and FHA with the "crack length" method or one air change method have been very liberal.

A comparison between glass heat and a forced warm air system was made to compare radiation and convection effects by means of unheated globe thermometers and shielded thermocouples. The outdoor temperature was at 5 F and the indoor was 71 F at the 30-in. level. The globe thermometer was higher than the air temperature at 30 in. for radiant panels and the reverse was true for the forced warm-air system. The mean radiant temperature was 4 degrees higher. Therefore, for equal sense of comfort, a higher degree of temperature would be required for the forced warm-air system. The A.S.H.V.E. Guide states: "Various authorities give 0.3 to 1 degree increase of room temperature to compensate for 1 degree depression of mean radiant temperature."

The floor surface temperature was 2 degrees F higher and the temperature 2 inches above the floor was 3.3 degrees F higher, as compared to forced warm air for equal basement temperatures.

Conventional heating systems have one thermostat which usually causes overheating of some rooms, as compared to individual room thermostat for glass heat. The overheating causes "stuffiness" and dry air.

Therefore, a given house with a room temperature of 71 F and 50 percent R.H. for glass panels, would require a temperature of 75 F for a forced warm-air system. If the same R.H. is to be maintained the air will be drier at 75 degrees dry bulb than with 71 degrees F.

These have been test results. There is no deliberate criticism in not referring to A.S.H.V.E. At the present, however, the Guide is not informative enough on electric radiant heating. All information has had to be obtained by actual installations and tests.

Meanwhile, Continental Radiant Glass Heating Corporation has suggested to Stinard that he visit their offices. They will be happy to conduct him through the building, heated entirely with glass, and, in addition, to place at his disposal all available information on the subject. This information has been compiled from the above-mentioned tests and from over 150,000 installations in the United States and abroad.

WILLIAM ANDERSON, Consulting Engineer
Continental Radiant Glass Heating Corp.
1 E. 35 St.
New York, N. Y.

the only solution

Dear Editor: Two extensive trips abroad have delayed my writing you with regard to the column written by Bernard Tomson on registration.

I am familiar with the problem and the difficulties, which stem almost entirely from the fact that registration laws must be passed by the political bodies of the various states. I have become convinced that the only solution to these problems, which will take a long time, will be through The American Institute of Architects and the National Council of Registration Boards. Approach to the various state legislatures would, of course, have to come through the local Chapters.

HAROLD B. WILLIS
Boston, Mass.

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Wherever your job, there's a Hillyard floor expert nearby. Hillyard puts this nationwide Maintaineer organization on your staff not your payroll. Each Maintaineer works with a full line of specialized floor treatment products. Can offer labor-saving ideas to better meet production schedules . . . will act as your job captain on floor treatment without charge. WRITE for the name of the Hillyard expert near you.

. . . on your staff
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FREE A. I. A. treating specifications for every type of floor.

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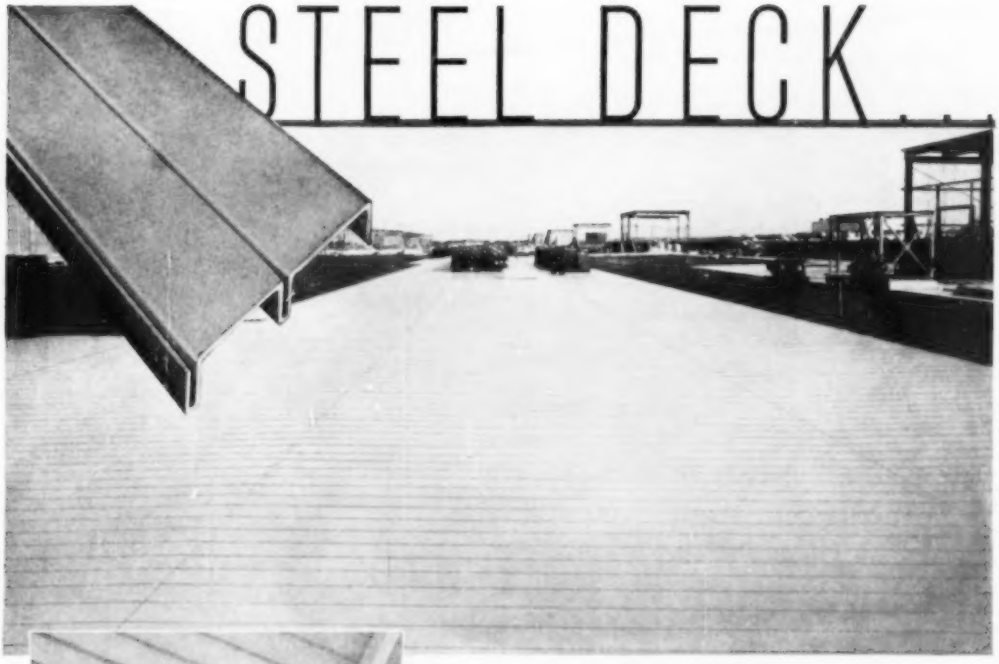
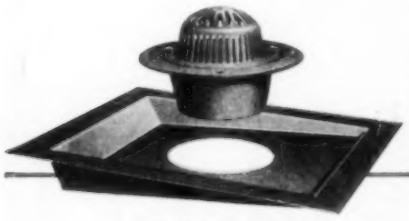
STEEL DECK...



BUILT-UP SADDLES ELIMINATED

Built-up saddles are eliminated in Steel Deck Roofs. Purlins can be set to create valleys at sump locations in the drainage area. Steel Deck can be warped to conform. No additional deck plates are required—no cutting or fitting necessary.



SUMP RECESSES and SUMPS

Mahon Roof Sump Recesses for use with Mahon Steel Deck can be furnished to fit any roof pitch. Mahon Cast Iron Sumps can also be furnished for 4", 5", and 6" conductors.

25 Acres of Mahon Steel Deck Protects New Industrial Plant!

When it comes to the selection of a permanent, firesafe roof for any type of industrial or commercial building, you will find that a Steel Deck Roof will cost less per square foot than any other type of construction with a comparable "U" Factor. Here are the facts: Steel Deck can be insulated to the exact degree to meet thermal requirements of the temperature range in any given locality—and, Steel Deck's light weight permits substantial savings in the supporting structure. Total dead load, including insulation and composition roofing material, is less than any other type of roof. Mahon Steel Deck is available in Galvanized or Enamel Coated Steel . . . it offers desirable features in both design and quality—for instance, the vertical-leg stiffening ribs of Mahon Steel Deck have no angular or horizontal surfaces where troublesome dust may accumulate. In the enameling process, the metal is chemically cleaned and phosphated to provide paint bond, and the protective coat of synthetic enamel is baked on at 350° F. prior to roll-forming. These are features worthy of your consideration. See Mahon's Insert in Sweet's Files for complete information, or write for Catalogs B-53-A and B.

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Manufacturers of Steel Deck for Roofs, Partitions, Ceilings and Floors; Insulated Metal Walls of Aluminum, Stainless or Galvanized Steel; Insulated Metal Wall Panels; Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Fire Shutters.

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Increasing the height of the wall space increases the amount of surface resistance to convection currents, until at 36″ this resistance is greater than the convection. Beyond 36″, there is little change.

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"Wall Heat Flow," a chapter in "Simplified Physics of Vapor and Thermal Insulation" describes the tests cited above. A copy of this authoritative manual may be obtained *free* by filling out the coupon below.

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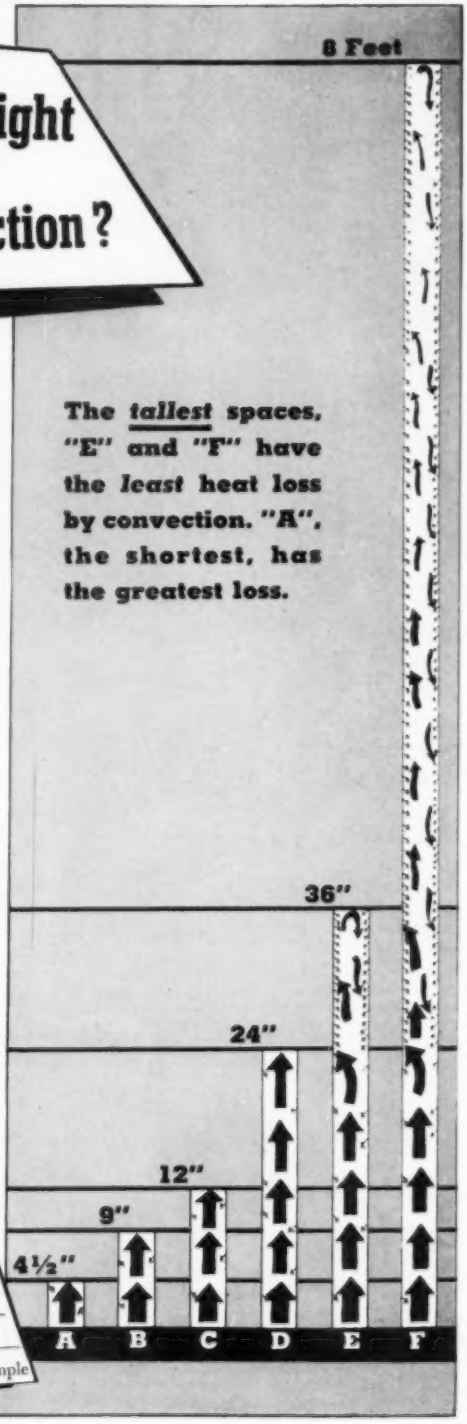

twin office buildings and mall

Limits of the legal setback lines for buildings in São Paulo, Brazil, defined the asymmetrical arches of these twin office buildings proposed by Rino Levi, Architect, and Roberto Cerqueira Cesar, Associate Architect, for a site between two thoroughfares that would be connected by a mall (right) serving as an interior shopping street.

Seeking the simplest design to provide maximum areas of well lighted, freely ventilated, unpartitioned rental space within the legal cubage limits for office buildings in downtown São Paulo, Brazil, Architect Rino Levi and Roberto Cerqueira Cesar, Associate Architect, developed the twin structures shown here, for a square site extending through a block from one business street to another. The client is National Life Insurance Company of São Paulo.

It was decided to erect two vertical slabs, placed at right angles to the streets atop a submerged block containing a two-level parking garage. This scheme would create three courts for light and air—above the shopping mall through the center of the project, and above the projections at either side containing ramped entrances to the garage. The window walls would face these courts.

Accepting the setback limits as the governing maximum, the architects described within those limits a parabolic curve which would become the structural arch of the two buildings. This curve is somewhat asymmetrical, as the widths of the bordering streets differ and hence the angles of façade setback differ. The elevator stacks are also off-center, as they are located at the peak of the curves. It is proposed to surface the steel-and-concrete arches with copper. The enclosed walls would be composed entirely of windows protected by structural sunshades.

Each office building would contain ground floor shops, 17 floors for office rentals, and roof clubs or restaurants.

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FOR EXTERIORS AND INTERIORS
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THE "Picture Door!"

This is the door that invites admiration! Tri-Panel creates a scene in light and color, ever changing with the source of illumination and the viewer's position.

WITH "3" Dimensions

High! Wide! Handsome! This is the Door that makes a home look "built!" Tri-Panel has the Depth that adds a substantial appearance especially when framed with a Morgan Entrance.

Morgan M-117 Tri-Panel Door in Morgan M-32 Entrance

M-117 Tri-Panel Exterior Door
Thickness: 1¾" with heavy 1⅛" hip-raised panels, 2 sides, ovolo sticking.

M-1073 Tri-Panel Interior Door
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Here is the Modern Accent for entranceways to house or room. Morgan Tri-Panel Doors are expertly styled by a top-ranking architect and superbly crafted by the experienced hands of third generation doormakers. Get the complete Tri-Panel story. See how Morgan Tri-Panel Doors blend with every trend, and live the life of the residence, always reflecting the good judgement of those who plan, supply, and build.

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But don't hold *that* against it.

Flexachrome* Vinyl Plastic-Asbestos Floor Tile is *all-man*, Mister . . . all-man *all the way through.*

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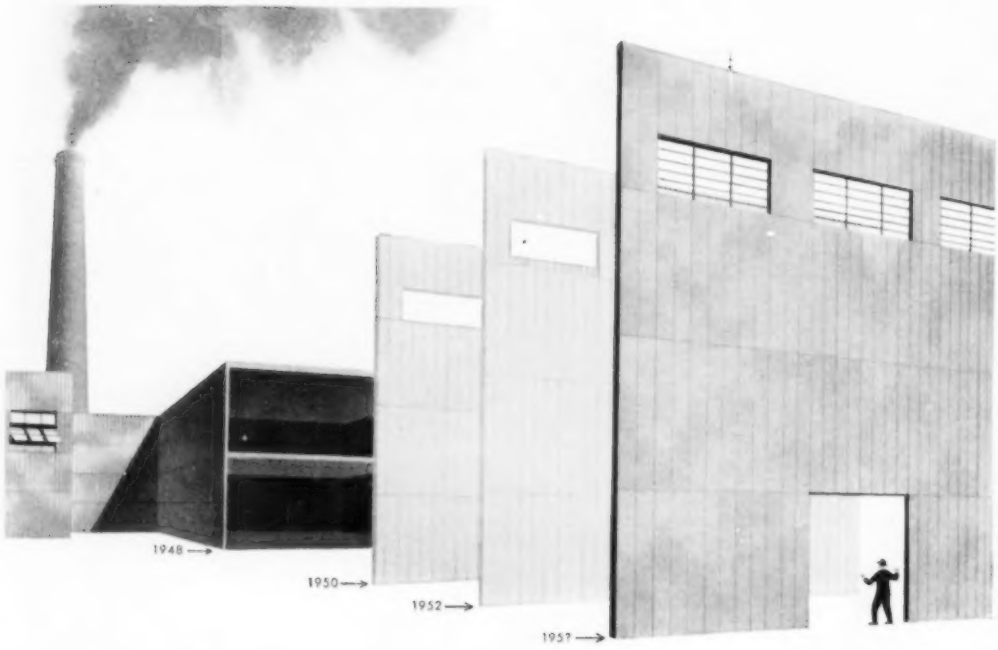

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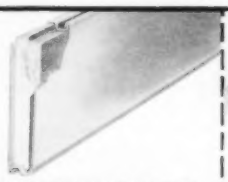
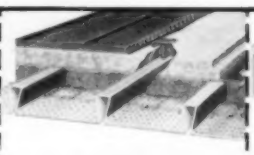
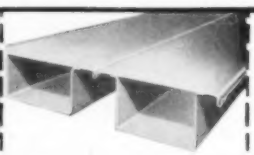


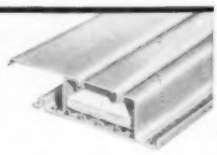
"C" Insulated Wall Panels. Width 16". Depth is 3". Steel or aluminum.



Acoustical Holorib for acoustical-structural roof. Width 18". Depth 1½".



"D" Panels for floors, roofs, ceilings. Standard width 16". Depth 1½" to 7½".



Acoustical "AD" Panels for ceiling-silencer-roof. Width 16". Depth up to 7½".

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Contractor: Turner Construction Co.

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Clairborne Towers, New Orleans, La.
Architects: Nowland Van Powell and Henry A. Ehrensing
Contractor: Shelby Construction Co., Inc.

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When you plan a building, you want it to be beautiful, you want it to be useful; and if it is for investment purposes, you want it to earn the owner a profit. In all cases, you certainly want to stay within the appropriations set aside for it.

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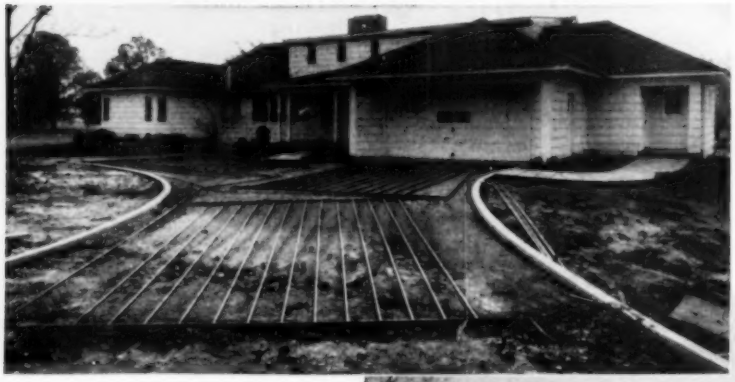
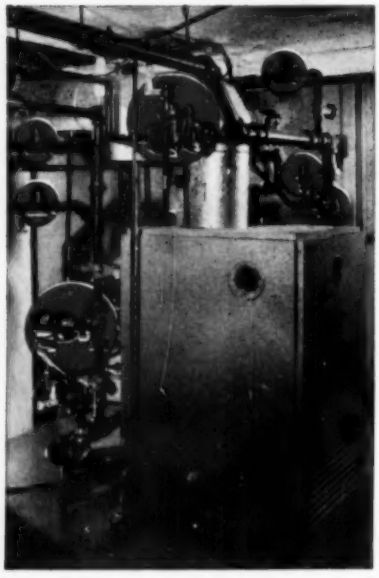


● *The residence of E.E. Dohn, Syracuse Heating Supply, Inc., Syracuse, N.Y.*

● *Pipe coils for circulating hot water under driveway.*

● *Snow melts as fast as it falls on the heated driveway.*



Boiler hook-up in the Dohn residence.

Here's one more reason the B & G *Hydro-Flo* System is tops in modern heating. Hot water can be circulated by a B & G Booster Pump through pipe coils under driveways and sidewalks, melting snow as fast as it falls. Another back-breaking job eliminated . . . another strong selling point!

B & G *Hydro-Flo* Heating assures better, more economical *radiant* heating in buildings of every size and character. At every weather change, the system *automatically* varies the heat input, so that indoor temperature is uniformly comfortable. This close control of the heat supply obviously results in exceptional fuel economy.

Add to all this the advantages of a limitless supply of domestic hot water . . . 24 hours a day, summer and winter.

The photo at the left shows some of the B & G equipment used in the installation illustrated here. It includes B & G Booster Pumps, Flo Control Valves, ASME Relief Valve, Airtrol Tank and Boiler Fittings for eliminating air from the system and a Comfort Control System—a wind-compensating, indoor-outdoor temperature control.

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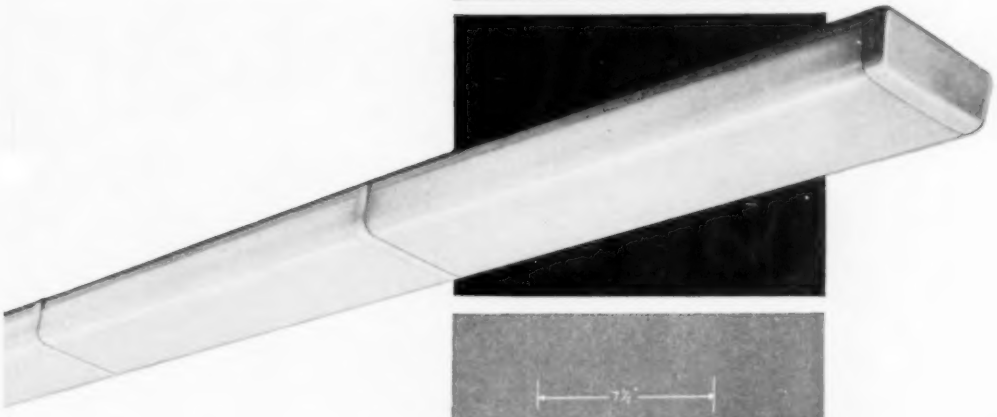

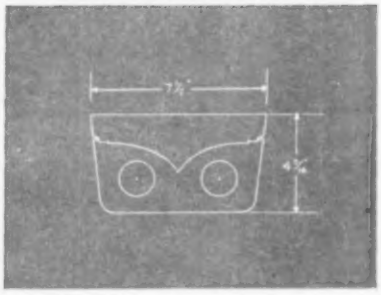

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PURE WHITE SURFACES of fixture and diffuser create a "built-in" appearance, blend into ceiling line.

MODIFIED PARABOLIC REFLECTOR directs glareless light to every part of the room. Snaps on to chassis for easy installation.

SIGHTRON LIGHTOLIERS can be safely specified for commercial or institutional locations where crisp appearance and quality illumination are required.

Installation at the International Nickel Co., Inc., New York

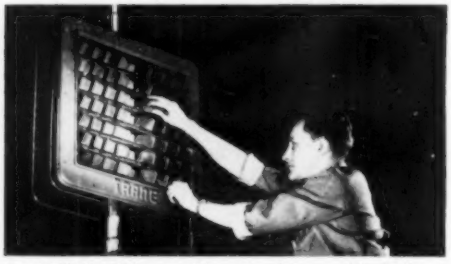
Sightron Lightoliers may be installed individually or in continuous rows, surface or pendant mounted. For detailed brochure write LIGHTOLIER, INC., Jersey City 5, New Jersey.

LIGHTOLIER

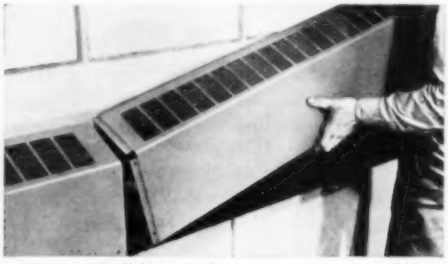
JERSEY CITY 5, NEW JERSEY

How TRANE can help you

A wide variety of TRANE *Convectors provides clean, quiet heat for office buildings, schools, hospitals, homes.*



Model H Unit Heater with optional Louver Fin Diffuser.



TRANE *Wall-Fin for long runs, easy assembly.*

Torridor Unit Heater—Heavy-duty blower-type.

Gas-Fired Unit Heater—Built like a boiler.

Unit Ventilator—Heat and fresh air for schools.

Powered Roof Ventilator—Efficient supply or exhaust ventilating.

Force-Flo Heater—Compact, powerful entrance unit.

MANUFACTURING ENGINEERS OF HEATING, VENTILATING

build better heating into your next job

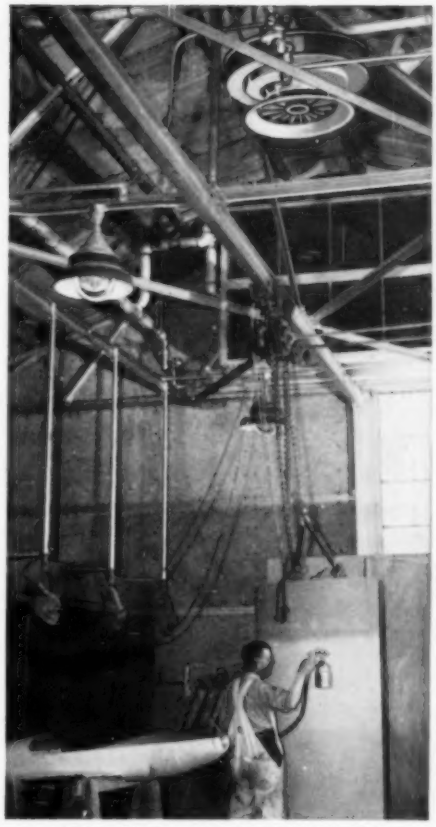
Let's say your next project is one with many *different* heating problems—long expanses of windows, hard-to-heat spots, big lobbies, drafty halls. TRANE helps you solve all these problems by building equipment to *match* the specific heating job . . . in so many models, so many sizes, that installation is easier and you get the exact results you want.

TRANE Unit Heaters simplify the special problems of factory heating. *Six different types*, to put heat wherever you want it—in remote spaces, in big production areas, in bays or craneways. Down-blow or horizontal air streams, gas, steam or hot water. Free-delivery units or duct work. Floor, wall or ceiling mounting. You can take your choice to meet your individual needs.

In TRANE Convectors, you can choose from an *unequalled range* of sizes and models. Ten distinct cabinet types: floor and wall-hung models. Sloping or flat tops, free-standing or recessed, hot water or steam. Beautifully designed to blend with modern interiors, carefully engineered to meet the exacting standards of engineers and architects.

TRANE Wall-Fin gives you a *third* answer to your heating problems. From this complete line you can specify single or tiered heating elements, hot water or steam. New additions to the line include special hanger arrangements and handsome TRANE Wall-Fin Cabinets for easy, low-cost installation.

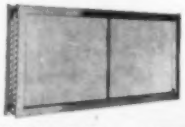
For complete information on TRANE heating equipment, see your nearest TRANE sales engineer, or write the TRANE Company at La Crosse, Wisconsin.



Projection Heater with adjustable Louver Cone.

Wall-Fin—For use when longer runs are needed.

Fans—Backwardly inclined and forward curved.



Heating Coils—All types for both steam and hot water.

Float, Bucket and Thermostatic Traps—For perfect service with TRANE heating equipment.

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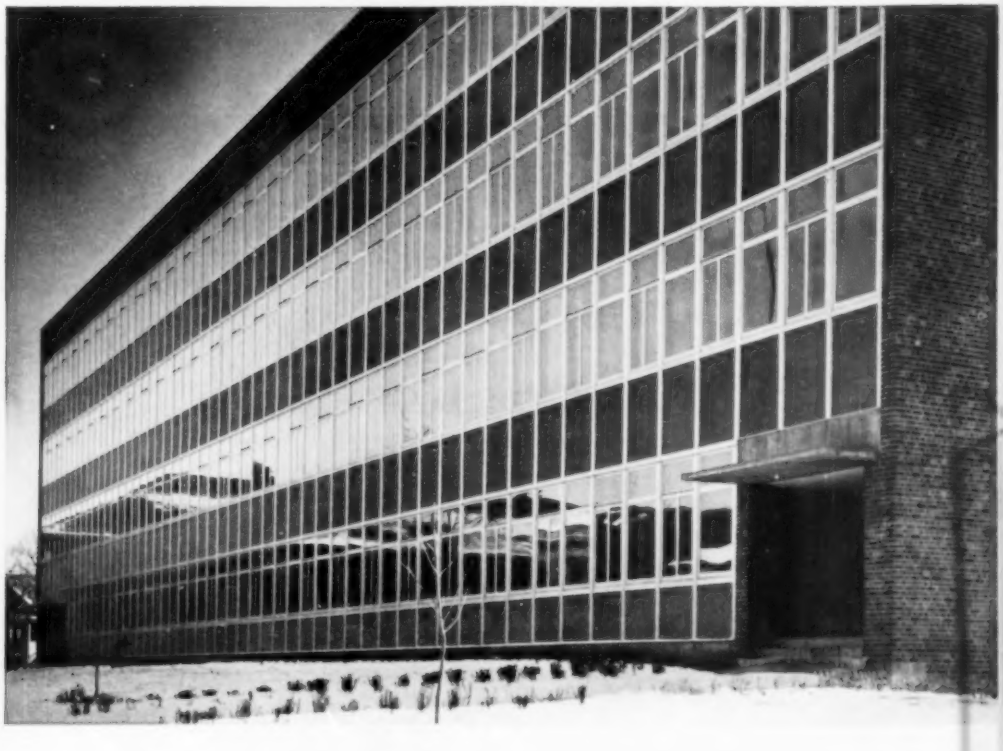
AND AIR CONDITIONING EQUIPMENT

Chemical Engineering Building, University of Minnesota, Magney, Tusler & Setter, Architects. Roy Jones, University of Minnesota, Advisory Architect. H. M. Leighton Company, General Contractor. The Flour City Ornamental Iron Company, Ornamental Metal Subcontractor, including windows. Alcoa Aluminum used in windows, spandrels, entrance frames and trim, stairway handrails and copings.



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In this laboratory, the designer, making skillful use of the many shapes, colors and textures available in aluminum, has made the window-spandrel pattern an expression of both the building's purpose and of the three-foot, eight-inch modular unit used throughout.

As the architects state, "The clean lines of the exposed aluminum surfaces give a straight forward appearance to the entire structure, which seems appropriate in view of the function of the building. Aluminum seemed the natural choice for its light-weight construction, ease of maintenance and regional climatic considerations."

In the planning stages of this, and nearly every other outstanding architectural use of aluminum, Alcoa sales engineers worked with the architects and engineers. They are at your service. For information on any form of aluminum, call your nearby Alcoa sales office or write:

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1890-K GULF BLDG. · PITTSBURGH 19, PA.

ALCOA

FIRST IN ALUMINUM

An analysis of lighting systems for today's classrooms . . .

CLASSROOM REQUIREMENTS

ceilings . . white to reflect maximum light
walls . . . peach and green to promote comfort
desks . . . light (non-gloss) to avoid glare
layout . . . 3 units in 3 rows for best spacing, minimum wiring
system . . . indirect incandescent for comfort and initial economy
illumination level . . . 30 footcandles

Indirect-incandescent lighting

...if first cost is a prime factor

The lighting standards in many of today's classrooms can be raised, even though funds are limited. Westinghouse Concentric Ring Luminaires are inexpensive, yet provide a comfortable indirect lighting system. Metal rings completely shield silvered bowl incandescent lamps, eliminating glare and shadows.

In this way, a much improved level of illumination is practical. The absence of dirt-accumulating surfaces minimizes maintenance. Initial economies are realized with this type of lighting, and a quality lighting system results.

Westinghouse has a complete line of both fluorescent and incandescent luminaires which meet classroom lighting requirements. Practical methods of providing proper illumination levels are studied. For an analysis of these methods, write for B-4556, The ABC Plan for School Lighting, Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Penna.

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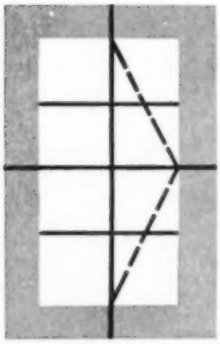
YOU CAN BE SURE...IF IT'S
Westinghouse
LIGHTING DIVISION
Edgewater Park, Cleveland, Ohio



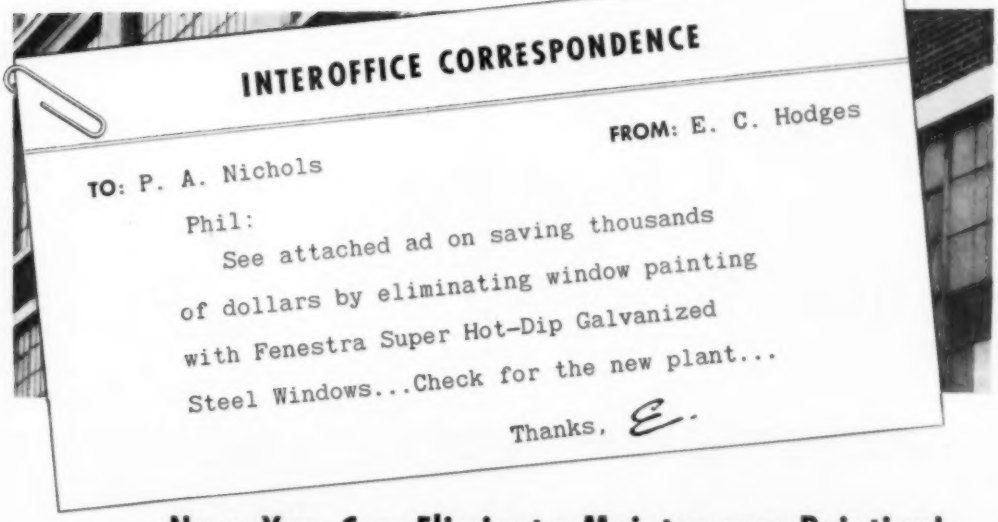
as fundamental as window frames...

A good plan is always better when it includes symbols for telephone outlets.

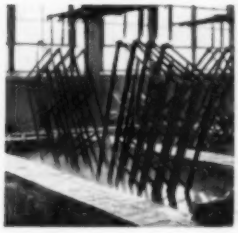
Telephone wires are like windows. They bring the outside world into the homes you design. And like windows, provision for telephone wires should be made while the house is being framed. Raceways, built into the walls, are your guarantee that wiring will be concealed, that interior effects will be protected.

Your Bell Telephone Company will be glad to help you plan economical raceway installations. Just call your nearest Business Office.

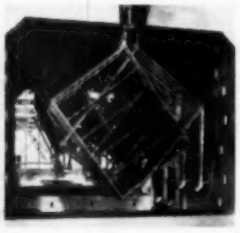
BELL TELEPHONE SYSTEM


INTEROFFICE CORRESPONDENCE
FROM: E. C. Hodges
TO: P. A. Nichols
Phil:
See attached ad on saving thousands
of dollars by eliminating window painting
with Fenestra Super Hot-Dip Galvanized
Steel Windows...Check for the new plant...
Thanks, E.

Now You Can Eliminate Maintenance Painting!

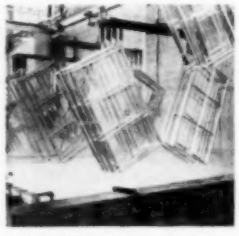


FLUXING. After cleaning, pickling and rinsing, Fenestra Windows dip into a flux bath that provides a film to prevent contamination of the cleaned steel as it passes to galvanizing tank.



DRYING. In this oven, the flux is dried on. Of course, in the galvanizing tank, this protective coat of flux volatilizes on contact with the molten zinc to permit a strong zinc-iron bond.

GALVANIZING. Assemblies dip deep into molten zinc, and come up with a heavy, smooth, uniform coating. Temperature and timing are automatically controlled with laboratory accuracy.



BONDERIZING. Here you see the galvanized assemblies being Bonderized to give the surface a soft silver color and to provide a holding surface for decorative paint, if it is ever desired.

Here's why it will pay you to check, too:

A window painting bill for a typical plant can run around $3,000 every few years.

The most practical answer to that—and any other window problem—is Fenestra* Super Hot-Dip Galvanized Steel Windows. They are rugged, rigid—and completely protected from rust.

Here's why they are called *Super* Galvanized: Fenestra has developed a Hot-Dip Galvanizing system designed specifically for steel windows, and has built a special plant around it. It is the only one of its kind in America.

Completely automatic controls move Fenestra window assemblies through a series of special tanks where they are cleaned and pickled, rinsed, fluxed, dried, galvanized and Bonderized. Every step is laboratory controlled.

So add Super Hot-Dip Galvanizing to other Fenestra advantages . . . such as integral ventilator butts that increase window strength, precision machining of window bars for perfectly uniform window size, automatic assembly of ventilators for perfect fit, continuous double contact for weather tightness all around vent openings, rigid *interlocking* muntin joints.

And, remember, Fenestra's volume production, permitted by standardization of types and sizes, keeps the cost of Fenestra Windows low.

Call your Fenestra Representative or write Detroit Steel Products Company, Dept. PA-10, 3409 East Grand Boulevard, Detroit 11, Mich.

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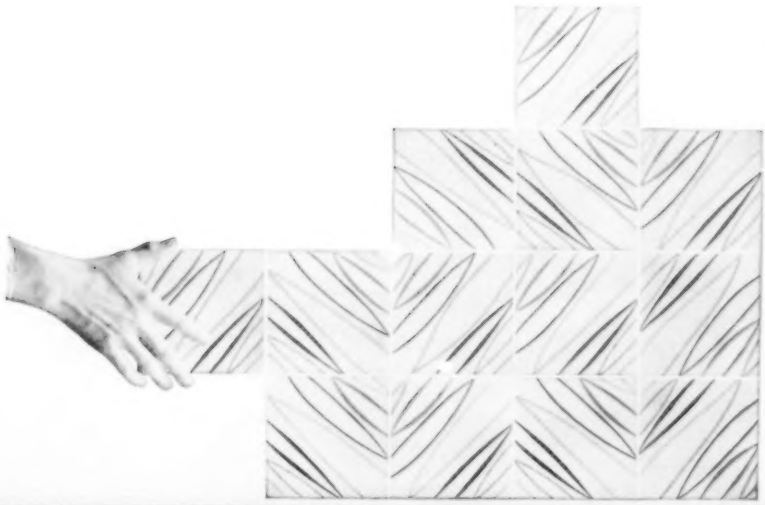
Fenestra SUPER HOT-DIP GALVANIZED STEEL WINDOWS

from America's first plant especially designed to galvanize steel windows



unlimited decorative opportunities at your fingertips!...

Mosaic Formfree Decorated glazed wall tile is easy to install. The tiles "tumble" into place at random, forming their own provocative pattern. No set plan for the tile setter is needed.

Study the illustration at the top of the page. Note how the pattern unfolds to form an ever-changing, ever-interesting design as installation progresses.

Mosaic's Formfree Decorated Wall Tile

Floor-to-ceiling fireplace of Mosaic Formfree Decorated Wall Tile highlights this Eastern home. Julius Gregory, Architect; Robert Chuckerow, Builder; R. L. Leonardi, Inc., Tile Contractor. The floor is finished in time-and grime-defying Granitex® Mosaic Pattern No. 1779-A3.

With Mosaic Formfree Decorated Wall Tile, the architect has no design limitations. Here is design freedom in inspiring latitude . . . ceramic tile that's equally successful for decorative panels and large continuous vertical surfaces.

Recommend Mosaic Tile without hesitation or reservation for any area where beauty, durability and resistance to moisture, stain, abrasion, fading and fire are prime essentials.

Once Mosaic Tile is installed, the cost of maintenance takes an immediate nose-dive, while repair, redecoration and replacement expense is stopped permanently.

For quick facts about Mosaic Formfree Decorated Wall Tile, and other Mosaic Tile, visit your nearest Mosaic Office, your Tile Contractor, or write Dept. 28-11, The Mosaic Tile Company, Zanesville, Ohio.

FREE! Write today for your copy of Mosaic's new Formfree Decorated Wall Tile Book.

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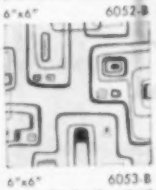
6"x6" 6050-A

6"x6" 6051-A

6"x6" 6052-B


6"x6" 6053-B

6"x6" 6054-B

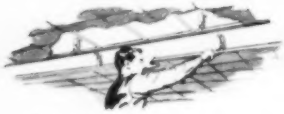
6"x6" 6055-A

open your eyes to this revelation in recessed lighting

MITCHELL *uni-flow* fluorescent troffers

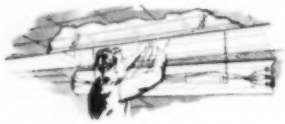
NOW you can specify recessed lighting that's years ahead of anything in the field. It's MITCHELL UNI-FLOW . . . completely new . . . dramatically different . . . easier to specify, easier to install, far superior in lighting efficiency. Architects, contractors, utility men and wholesalers say unanimously: *"This is what we've wanted in recessed lighting!"*

JUST 4 EASY STEPS TO A PERFECT *uni-flow* ONE MAN INSTALLATION



1 Uni-Hangers are roughly located in ceiling opening (no critical measuring required). Takes just minutes, regardless of ceiling construction. Saves hours of time on any job—cuts installation costs sharply.

2 Troffer shell (less ballasts, lampholders or reflectors) clamps to Uni-Hangers by means of special Uni-Liner clips (an easy one-man job). Simple screwdriver adjustment levels troffer properly.



3 Reflector-ballast-lampholder plate (the bulk of the total troffer weight) is attached to troffer shell by means of jack chains. Thus, there is no weight on the installer's hands when wiring.

4 With wiring completed, reflector-ballast-lampholder assembly attaches to troffer shell by means of exclusive "Perma-Latch" (no tools or extra loose parts required). Job is now ready for easy lamping.

HERE'S EVERYTHING YOU NEED FOR SIMPLIFIED RECESSED LIGHTING

Here is a complete family of matching troffers in every useful length. Units are available in 2-foot, 4-foot, 5-foot, 6-foot, 8-foot or 10-foot lengths, in deep (10") or shallow (7") types.

Here is the widest selection of shielding equipment: choice of Metal Louver, Plastic Louver, Alba-Lite, Prismatic Glass, Unilens, Twinlens, Curved Lens, Fota-lite, Longitudinal Shields and Crosswise Baffles.

UNI-FLOW troffers offer a choice of 40-watt T-12 standard or instant-start bi-pin lamps, 38-watt Slimline, 54-watt Slimline, 75-watt Slimline, 40-watt T-17 low brightness, 85-watt Krypton, 20-watt T-12 lamps.

Troffers are available with 1, 2 or 3 lamps (except 5-ft. and 10-ft. units with 1 or 2 lamps only). One-lamp units are available in choice of Alzak or baked white enamel reflector; two and three lamp units with baked white enamel reflector.

Only MITCHELL UNI-FLOW has these time-saving, cost-cutting features

Write, phone or wire today for the complete facts about MITCHELL UNI-FLOW
Address Dept. 5-K

MITCHELL MANUFACTURING COMPANY
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two bathrooms of BRIGGS *Beautyware*

A MUST IN EVERY MODERN HOME!

IN COLOR

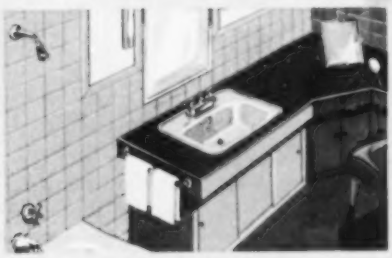
It's the big feature most wanted by today's smart home buyers

Offer your clients *two* bathrooms complete with gorgeous pastel Briggs Beautyware plumbing fixtures—and watch their eyes light up! Here's a luxury feature sure to help sell more homes—faster. Home buyers—even in the medium and low price brackets—know how it boosts convenience and increases resale value. They're especially pleased when they learn how little it adds to the monthly payments on the house.

Smart, new ultra-modern contours give Briggs Beautyware a top-quality look you can't miss. And the quality is built in! You'll find no finer plumbing fixtures anywhere than the acid-resistant porcelain enameled bathtubs and lavatories of rigid formed steel. There's a world of eye-appeal and lasting value, too, in the attractive vitreous china lavatories and water closets—as well as Briggs first-quality brass fittings.

When you draw up specifications, include *two bathrooms* of Briggs Beautyware—and design for better housing!

Here's extra distinction—a custom-built bathroom!



Briggs flat-rim lavatories provide a truly modern touch—the built-in treatment so popular with today's home buyers. Economical and easy to install, they offer endless opportunity for unusual bathroom designs.

Millions of home owners see these national ads! Magazine readers throughout America are seeing Briggs Beautyware in all the glory of its four famous decorator colors—Sky Blue, Sea Green, Sandstone and Ivory—in addition to sparkling white. This advertising works for you!

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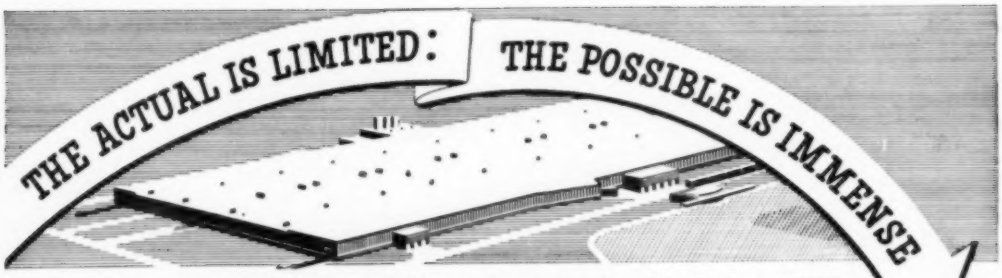

NEW LINCOLN PLANT CREATED BY INCENTIVE-INSPIRED CO-ACTION IN DEVELOPING POSSIBILITIES IN PRODUCT

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13 STORY WELDED FRAMEWORK SAVES 25% STEEL

By **NED H. ABRAMS,** Architect
Sunnyvale, California

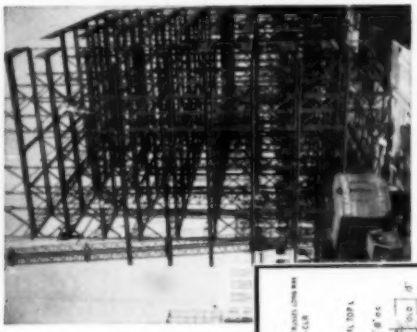
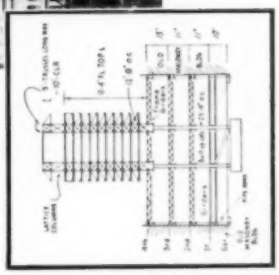


Fig. 3. All-Welded Framework *for the 13-story Ridpath Hotel, Spokane, Washington. Steel Fabricated by Union Iron Works; Erected by Dix Steel Company, Spokane, Wash.*

EFFICIENT use of all-welded prefabricated construction has cut steel needs by 25% and costs by 20% on this 900 ton framework. Total weight of the hotel building is estimated at one-third less than conventional structures making this 13-story, 100' x 155' building one of the lightest, yet strongest structures in the Pacific Northwest.

Light, open trusses carry most of the dead loads to the columns. Structural members are shop fabricated at low cost with fast, downhand welding techniques. Lattice columns are erected from the street while other framework is erected from a crane platform on the fourth floor level using a 123-foot boom.

During construction it was decided to increase the width of the framework from 40' to 45'. Had it not been for the welded design, such a modification would have entailed considerable cost.



How to Design Arc Welded Structures

Latest data on calculations, procedures and costs are found in the new 9th Edition Procedure Handbook of Arc Welding Design and Practice. Price only $2.00 postpaid in U.S.A.; $2.50 elsewhere.

WELDED DESIGN ALWAYS SAVES STEEL LOWERS COST

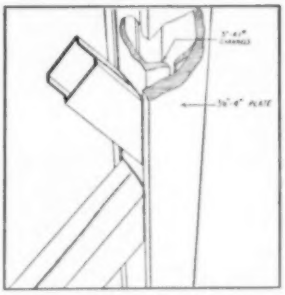


Fig. 1 Typical Detail—*Lattice column shop fabricated at low cost from 3"—4.1# channels and ⅜" plates and field welded with Lincoln "Fleetweld" 5 electrodes.*

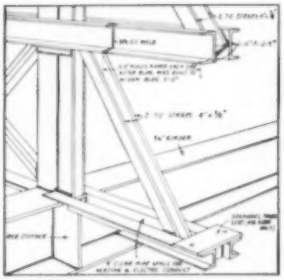


Fig. 2 Column and Spandrel Support—*Typical detail fourth to eleventh stories. Shows addition of 5'0" to building by splicing 10" channels to the frame. Tie straps are 4" x ⅛" angles.*

MORE PROOF

Studies in Structural Arc Welding free on request. Designers and engineers write on your letterhead to Dept. 152

THE LINCOLN ELECTRIC COMPANY

Cleveland 17, Ohio

THE WORLD'S LARGEST MANUFACTURER OF ARC WELDING EQUIPMENT

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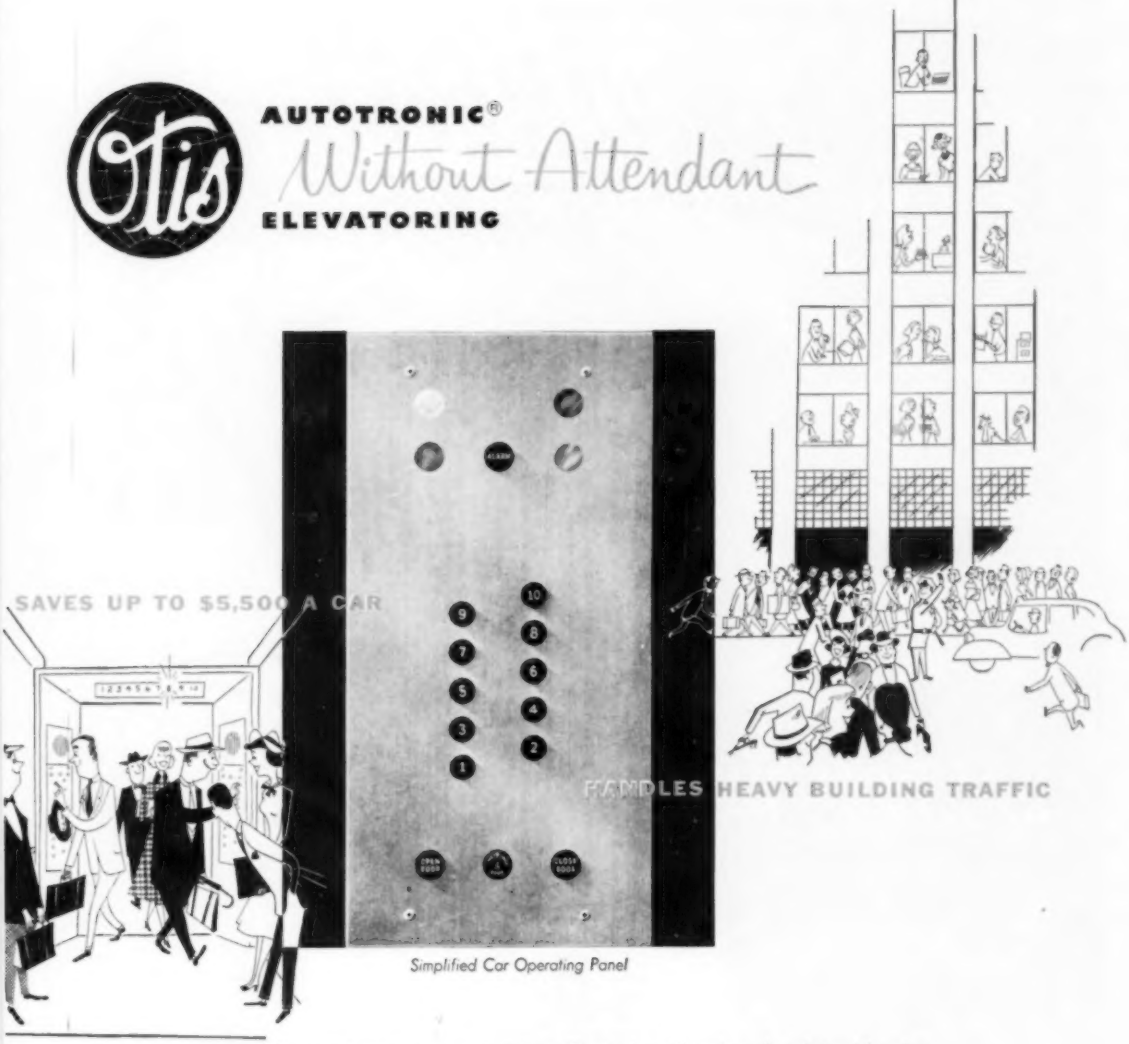
AUTOTRONIC®

Without Attendant

ELEVATORING



Simplified Car Operating Panel

Autotronic—WITHOUT ATTENDANT—Elevatoring offers the only substantial saving in building operation that is available today. It saves up to $5,500 a car, each year.

Passengers simply step into the car and press the buttons for the floors they want. The car operation is completely automatic.

Autotronic—WITHOUT ATTENDANT—Elevatoring has been in successful operation for more than two years. It has proven itself in single-purpose buildings. It has handled diversified traffic to everyone's satisfaction. It has the speed and the automatic group supervisory control needed in many large buildings, yet is adaptable to small buildings. It can be used in hospitals. Its specific application is a matter of individual study.

Why not visit an actual Autotronic—WITHOUT ATTENDANT—Elevatoring installation in a new or modernized building? Talk with the tenants and management. Ask any of our 266 offices for details. Otis Elevator Company, 260 11th Avenue, New York 1, N. Y.

BETTER ELEVATORING IS THE BUSINESS OF OTIS

NEW! NEW! NEW!
A dramatically beautiful Sound Conditioning material unlike any other you have ever seen!
Sharp perforations of varying size, arranged in random fashion.
Rich, linen-like surface that gives better light diffusion.
Pattern that minimizes joint lines, for beautiful overall effects.
Acousti-Celotex
RANDOM PATTERN
Perforated Tile

Introduced just a few short months ago, Acousti-Celotex RANDOM PATTERN Perforated Tile has already captured the imagination of architects in every part of the country.

Acclaimed the most unusual, most beautiful Sound Conditioning material in 20 years, it offers exciting new decorative possibilities for interiors of every type! Smart, dramatic effects impossible with any other Sound Conditioning product!

But that isn't even the half of it. Like all Acousti-Celotex products, RANDOM PATTERN Perforated Tile has high sound-absorbing value. Two coats of tough finish, bonded under pressure of a hot knurling iron, give it a surface of superior washability. Can be washed *repeatedly* and painted *repeatedly* without impairing its sound-absorbing efficiency.

ASK YOUR DISTRIBUTOR to show you the new Acousti-Celotex RANDOM PATTERN Perforated Tile. If you don't know where to reach him, write to The Celotex Corporation, Dept C102, 120 S. LaSalle St., Chicago 3, Ill. In Canada, Dominion Sound Equipments, Ltd., Montreal, Quebec.

ACOUSTI-CELOTEX
Sound Conditioning

PRODUCTS FOR EVERY SOUND CONDITIONING PROBLEM

THE CELOTEX CORPORATION, 120 S. LA SALLE ST., CHICAGO 3, ILLINOIS

Within the covers of this catalog, you have a practical approach and follow-through in steel building design.

This catalog demonstrates the economies of the 20 foot bay module in structural frame design.

From your original thinking and planning of a building type for a given area and occupancy need, this catalog provides actual details drawn to scale that can be adapted to your needs.

In this phase of structural frame design, Macomber provides you with the accepted methods of present day structural assembly, designed to utilize standards that will reduce building costs.

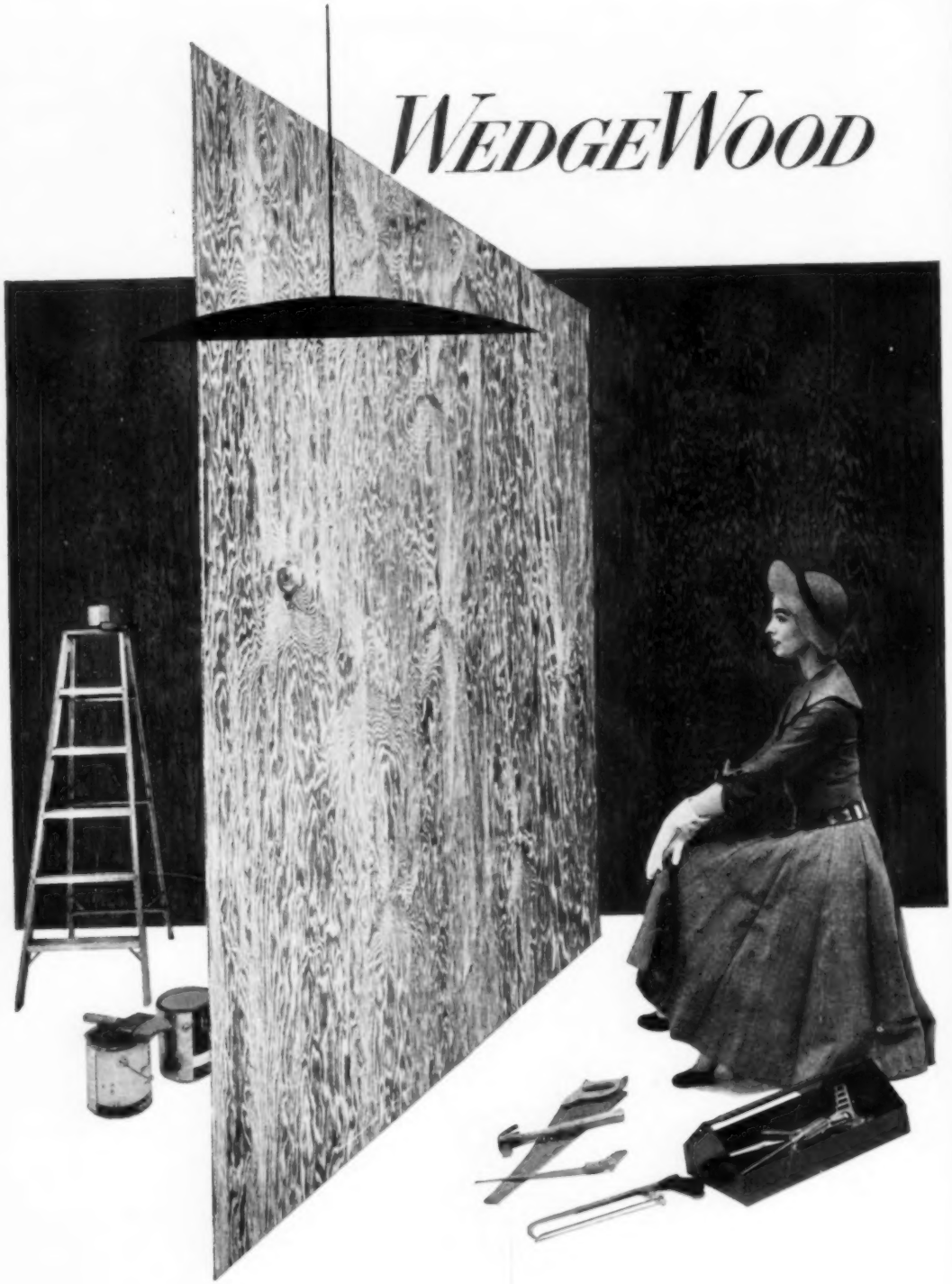
It is our sincere belief that no structural engineer will file this catalog further away than his desk drawer when he sees what Macomber has compiled in these 20 pages of useable design information. Where shall we send your copy?

STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER • INCORPORATED

CANTON, OHIO

V BAR JOISTS • LONGSPANS • BOWSTRING TRUSSES • STEEL DECK


WEDGEWOOD

new low-cost plywood panel captures all of nature's rustic beauty

Now . . . you can bring the exciting untamed beauty of the great outdoors to interior walls and paneled surfaces everywhere. For WedgeWood glorifies the infinite variations of grain and texture found only in Upland Western Hemlock, capitalizing on its natural growth characteristics, such as knots, bark pockets, radial checks and streaks. Georgia-Pacific makes this exciting new decorative plywood by a special process that brings the grain into feathery textured relief. The result is a wood wall paneling of enduring beauty, resin-sealed at the factory.

WedgeWood is produced in two types . . . *Burly* and *Knotty*, each with a distinctive character. The rich texture and character marks create unusual color effects when painted. Subtle or dramatic two-toned effects can be obtained by applying light paints on dark or dark paints on light. Use WedgeWood for dramatic interior styling in homes, offices, stores, cocktail lounges, etc.

See WedgeWood at your lumber dealer's or write on your letterhead for WedgeWood folder. Georgia-Pacific Plywood Company, 609-10B North Capitol Way, Olympia, Wash.

GEORGIA—PACIFIC
PLYWOOD COMPANY

OFFICES OR WAREHOUSES IN: Augusta, Birmingham, Boston, Chicago, Cleveland, Columbia, Detroit, Houston, Lancaster, Los Angeles, Louisville, Memphis, Nashville, Newark, New Hyde Park, New Orleans, Olympia, Orlando, Philadelphia, Pittsburgh, Providence, Raleigh, Richmond, Savannah, Vineland.

DOUGLAS FIR PLYWOOD • HARDWOOD PLYWOOD
GPX • SOUTHERN & WESTERN LUMBER • DOORS

WedgeWood *Burly* has a refined, fairly uniform grain with many of nature's character marks and each panel may contain up to four small knots, each no larger than a dime.

WedgeWood Creates New Markets For Decorative Wood Paneling. Now everyone can afford the luxury of genuine wood paneling. Check these cost-cutting features:

LOW COST—WedgeWood is one of the lowest priced decorative panels on the market.

RESIN-SEALED—Comes with a slightly pigmented sealer . . . ready for finishing. When painting, one coat will cover, but two coats in contrasting colors create more dramatic effects.

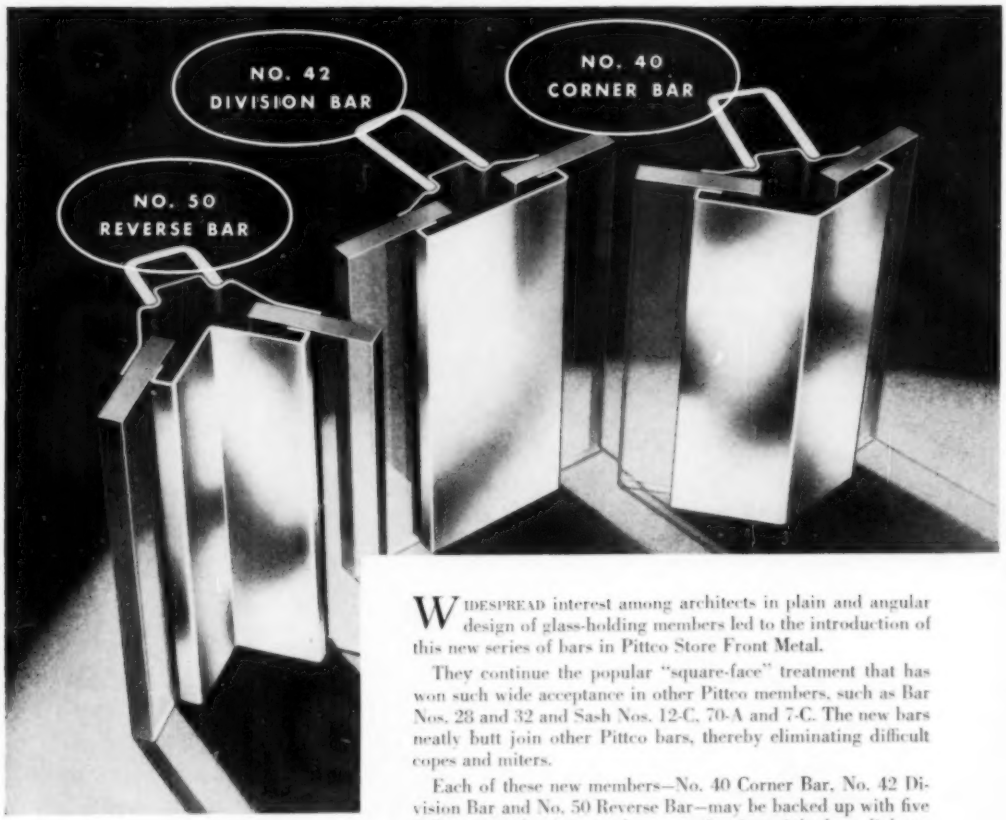
EASY INSTALLATION—4 by 8 foot panels, 5/16 inch thick, go up fast. Each carton contains complete application and finishing suggestions.

PACKED IN CARTONS—Ten-panel cartons reduce handling costs, insure clean, undamaged stock.

WedgeWood *Knotty* provides interesting variety in the tight knots and grain swirls that result, plus other natural growth characteristics that help produce dramatic effects when painted.

NEW SERIES *of Pittco Bars*

for architects who want the plain and angular



WIDESPREAD interest among architects in plain and angular design of glass-holding members led to the introduction of this new series of bars in Pittco Store Front Metal.

They continue the popular "square-face" treatment that has won such wide acceptance in other Pittco members, such as Bar Nos. 28 and 32 and Sash Nos. 12-C, 70-A and 7-C. The new bars neatly butt join other Pittco bars, thereby eliminating difficult copes and miters.

Each of these new members—No. 40 Corner Bar, No. 42 Division Bar and No. 50 Reverse Bar—may be backed up with five different reinforcing members, ranging in weight from light to extra heavy. They offer the same strength and ease of setting that characterizes the entire Pittco line.

Ask your Pittco representative to show you this new series of Pittco bars.

PITTCO
STORE FRONT METAL

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS

PITTSBURGH PLATE GLASS COMPANY

HERE ARE THREE WAYS THE HEATILATOR* FIREPLACE UNIT MAKES YOUR JOB EASIER:

1. You know in advance every fireplace you design will work properly. The Heatilator unit's scientific design protects you against rule-of-thumb building methods. It assures you of trouble-free operation. It reduces the need for constant on-the-job supervision.

2. Construction is simplified. Each unit comes complete with firebox, throat, down-draft shelf, damper and smoke dome...fully assembled. Only the decorative masonry is needed to complete the installation.

3. It circulates heat throughout the room instead of wasting most of it up the chimney.

The Heatilator Fireplace puts no limit on mantel design of use of materials...gives you complete freedom of architectural expression. It's ideal for basement rooms...a must for summer camps or cottages...and as a supplemental source of comfort during service interruptions or emergencies. The leader since 1927, the Heatilator Fireplace has been proved in actual use by hundreds of thousands of satisfied owners. It will pay you to specify a Heatilator Fireplace in your next home or group of homes. Heatilator, Inc., 3910 E. Brighton Ave., Syracuse 5, N. Y.

*Heatilator is the reg. trademark of Heatilator, Inc.

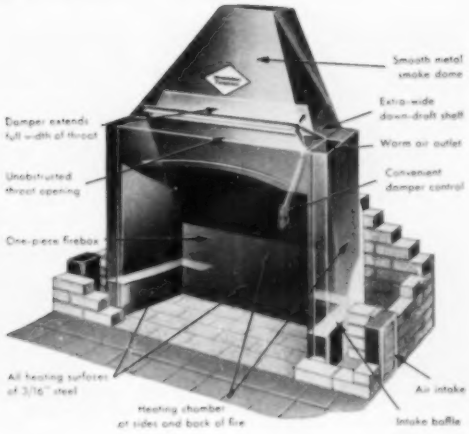
NO SMOKING - NO GRIEF - NO LIMIT TO MANTEL DESIGN!

with the

HEATILATOR

T. M. REG. U. S. PAT. OFF.

FIREPLACE



STOCKS OF COPPER are already in better shape at wholesale outlets. Contractors can now bid on the basis of adequate supplies of copper.

COPPER IS NEWS!

New NPA ruling substantially increases amount of copper permitted for residential work—and new Anaconda production facilities will help keep copper supplies rolling

The amount of copper now allowed per family dwelling unit virtually means that once again copper may be used for all water piping, for soil, waste and vent lines, and for all sheet metal work required for the average-sized residence. And copper will continue to be available from Anaconda's new production facilities, such as the Greater Butte Project, the Chuquicamata development in Chile and Anaconda's newly modernized tube and rolling mills.

Now you can assure your clients that their plumbing and sheet metal work will give lasting service. For you can specify copper knowing that its labor-saving economy will add little, if any, to the total cost of their homes.

Every home you design is a *better* home when you specify copper. Every *client* becomes a more *satisfied* owner as year after year his plumbing and sheet metal work requires no attention or expense due to rust deterioration. The American Brass Company, Waterbury 20, Connecticut.

Don't forget—now you can use copper for:

WATER SUPPLY LINES

SOIL, WASTE AND VENT SYSTEMS

RADIANT PANEL HEATING

EXTERIOR FLASHING

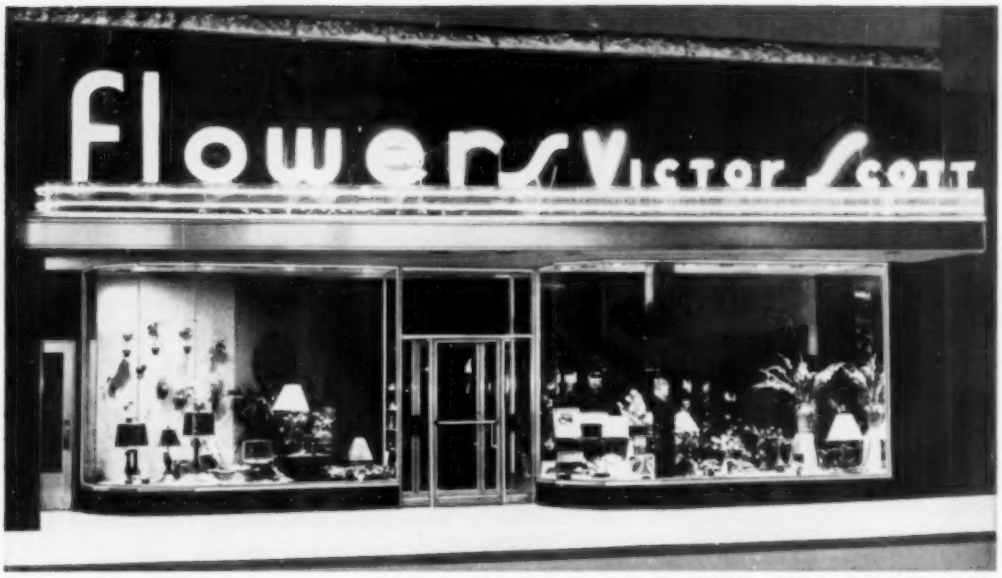
GUTTERS AND LEADERS

THROUGH-WALL FLASHING

BUILD IT BETTER WITH

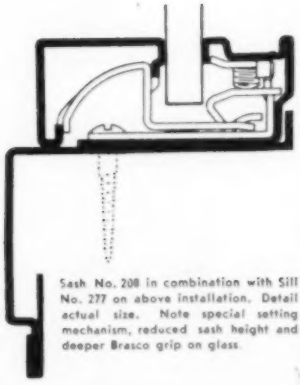
ANACONDA®

COPPER



Brasco Store Front and Entrance Installation, Winnipeg, Manitoba.
Architects, Prain & Ward

BRASCO *at the Front* BRIGHTENS THE BUSINESS OUTLOOK



Sash No. 208 in combination with Sill No. 277 on above installation. Detail actual size. Note special setting mechanism, reduced sash height and deeper Brasco grip on glass.

ALWAYS on the lookout for more customers the modern Brasco Front stops the shopping parade and directs attention *inside*. In complete accord with contemporary architecture, handsome Brasco store front and entrance assemblies present clean, attractive profiles, unmarred by deep, grime-catching recesses. Sash faces are lower to enlarge visible glass areas and permit full *Sellev'sion*® effects.

Unique store front identity is easily attained with your own combination of versatile members in the extensive Brasco line. In either heavy gauge stainless steel or anodized aluminum Brasco is your *safest* store front setting. The glass is held securely, without strain, in the deeper grip utilized in all Brasco sashes and bars.

Smartly styled, our all-extruded Aluminum Entrances add to the pleasing appearance of the complete store front assembly. All screws and fastenings are fully concealed. Catalog and full size construction details covering our complete lines are immediately available. Please address Dept. P 210. ®©

★ ★ A COMPLETE LINE FOR EVERY DESIGN ★ ★

Brasco
SAFETY-SET
STORE FRONTS

BRASCO MANUFACTURING CO.
HARVEY · (Chicago Suburb) · ILLINOIS
Specialists in Metal Store Front Construction for more than 40 Years

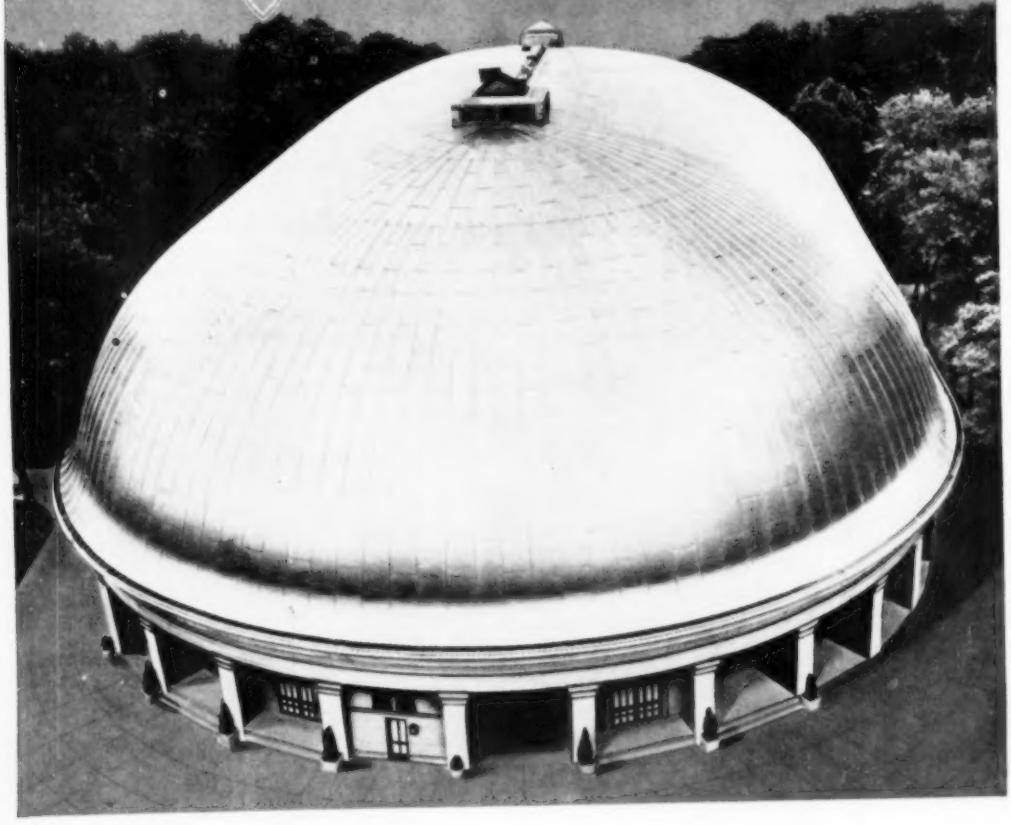
difficult oval dome replacement roof crafted by Overly

The famed Mormon Tabernacle now has a roof considered good forever. This Salt Lake City, Utah, edifice previously had two heavy roofs in succession; first wood shingle, then metal shingle. The final and much lighter roof shown is aluminum—of the Overly-Goodwin Batten type. • Overly replacement work required accurate measuring, precise shop fabrication of 188 sections, skilled erection—resulting in perfect fit and permanent water tightness. Designer: Latter Day Saints Church Building Committee. • Send for Catalog 7-B.

OVERLY MANUFACTURING COMPANY

GREENSBURG, PA. (Phone Greensburg 134)

• Sales Representatives in All Principal Cities •



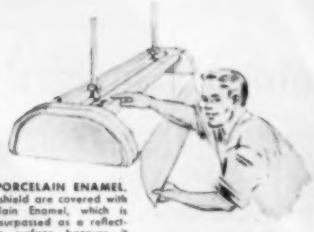
now, a new high in seeing comfort

through sensationally-increased UPWARD LIGHT...

Now, approximately ¼ of light is directed UPWARD through a completely new, precedent-shattering concept of lighting unit design! The new Benjamin "Task-Master" is the modern solution to the brightness ratio problem. By combining greater upward flow of light with a new high of 35° in lamp shielding, "Task-Master" doubles, even triples, present standards for industrial seeing comfort. In addition to sensationally-increased UPWARD light and lamp shielding, "Task-Master" features revolutionary new, easier methods of installation and maintenance, such as those illustrated below. Send for FREE "Task-Master" Bulletin, giving further details. Write for Bulletin AD 5906. Benjamin Electric Mfg. Co., Dept. PA, Des Plaines, Illinois.

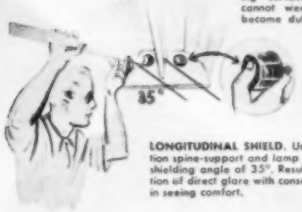
BENJAMIN "Task Master"

Sold Exclusively through Electrical Distributors



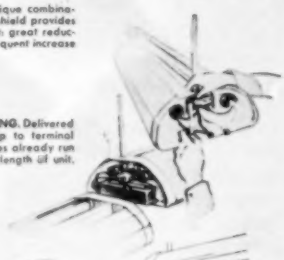
DETACHABLE REFLECTORS are hinged to make possible easier, more thorough cleaning right on the fixture. They may also be detached and cleaned away from the unit. Available with sliding hangers, as shown.

"LIFE-TIME" PORCELAIN ENAMEL. Reflectors and shield are covered with genuine Porcelain Enamel, which is unsurpassed as a reflecting surface because it cannot wear, scratch or become dull.



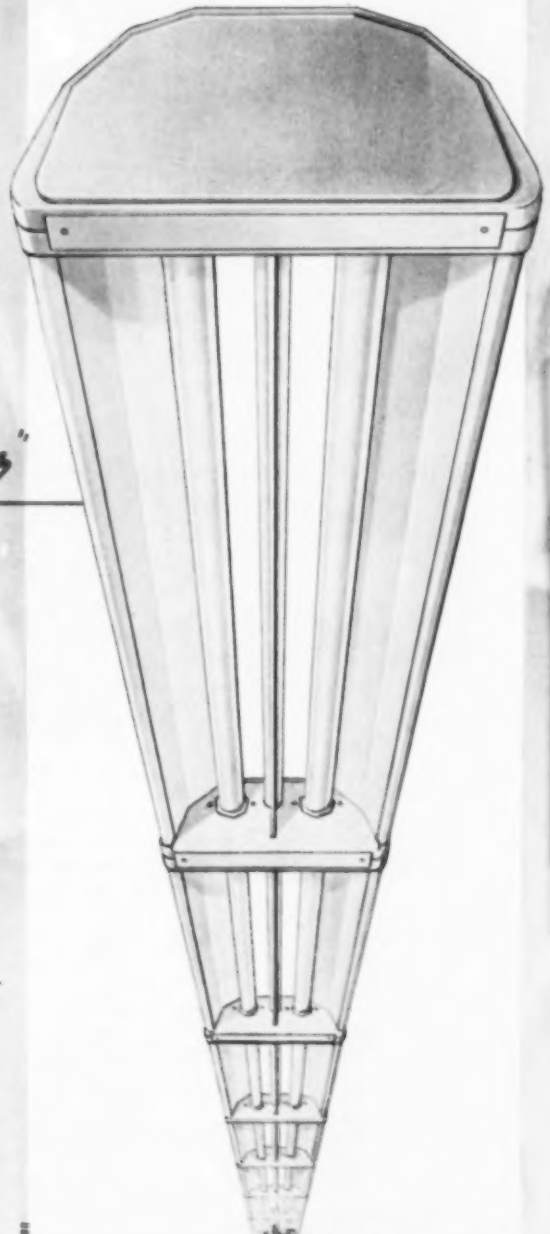
"SPRINGLOX" LAMPHOLDERS are standard equipment. These rugged, all-metal, lifetime lampholders facilitate lamping and relamping through patented spring design.

LONGITUDINAL SHIELD. Unique combination spine-support and lamp shield provides shielding angle of 35°. Result: great reduction of direct glare with consequent increase in seeing comfort.



PRE-WIRED—NO WIRE SPLICING. Delivered with all connections made up to terminal block. Branch-circuit wire comes already run through spine support, entire length of unit.

SPECIAL "HOOK-UP" DESIGN makes it possible for the installer to temporarily hang one unit on another while connecting the jumper wires to opposite terminal blocks.

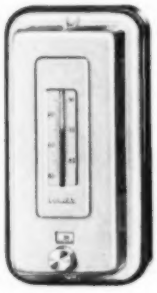


8-6188

DUKE UNIVERSITY CLASSROOM and ADMINISTRATION BUILDING, Durham, N. C.

Architects: Office of HORACE TRUMBAUER • WILLIAM O. FRANK • W. EDWARD FRANK, Philadelphia, Pa.

Consulting Engineer: WM. M. WALLACE II, Durham, N. C. • Heating Contractors: DURHAM PLUMBING & HEATING CO.



145 Powers Type D Thermostats used here with single knob limited temperature adjustment. When room is vacated for the day occupant turns dial to word "OFF". Note its simplicity and small size: H. 5⅛", W. 2⅞", Depth 2⅛".

Powers Radiator Control Valve

In Prominent Universities —

POWERS® TEMPERATURE CONTROL

is selected to provide the comfort and fuel economy which result from the elimination of overheated rooms.

In Duke University's beautiful new Classroom and Administration building the heating system will be automatically regulated by 145 Powers individual room thermostats controlling 236 radiator valves on convectors and direct radiation.

At Harvard, Massachusetts Institute of Technology and many other famous institutions Powers systems will be found giving dependable low-cost-maintenance-control after years of reliable service.

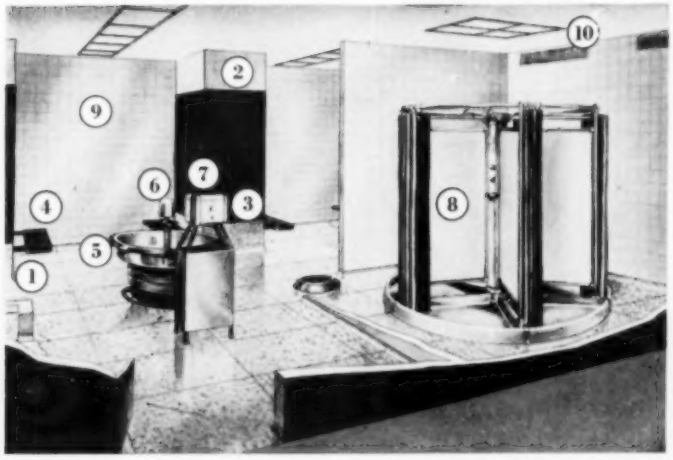
When problems of temperature and humidity control arise why not let POWERS work out the correct solution? Our more than 60 years of experience gained in all types of important buildings should be helpful to you. Phone or write our nearest office. There is no obligation.

POWERS CONTROL

Since 1891

(a501)

OFFICES IN OVER 50 CITIES **THE POWERS REGULATOR COMPANY** SKOKIE ILLINOIS



All kinds of man-hour savers, in this modern combination Locker Room, Shower Room and Washroom:

1. **Lockers mounted flush** on terrazzo or cement islands, without legs.
2. **Mechanical ventilation** via fresh dry air intake drawn through perforated locker ceiling and floor plates to exhaust duct.
3. **Locker floor plates** inclined and provided with shoe cleats.
4. **Benches off floor** projecting from locker islands.
5. **Circular stainless steel** wash fountain for 8-10 persons. Has foot-ring water control.
6. **Soap dispenser** on wash fountain.
7. **Towel** dispenser-waste receptacle unit for heavy traffic.
8. **Circular showers** for 5 users. Colorful, plastic shower curtains.
9. **Walls of tile** or glass, moisture-resistant.
10. **Recessed ceiling lights** directly over shower.

Now man-hour savings can be "BUILT-INTO" a building

IN THESE DAYS of pyramiding costs of operation, your client is on the alert for every money saver, waste cutter and man-power saver . . . especially in a new plant. "Save one man-hour a day—save 250 man-hours per man a year!" is his thinking. When he multiplies that by the number of employees, he's thinking about *big* savings.

All the more reason you should give him the latest in washroom equipment, *built right into* his plant. Modern fixtures, properly placed, can save man-hours and money by keeping traffic moving—reducing washroom tie-ups and untidiness. Use of off-the-floor fixtures can cut washroom cleaning costs, eliminate dirt-catching corners. Pleasant, modern personal service rooms can pay dividends by reducing illness and boosting morale.

One for morale—this spacious comfortable ladies' washroom. Note "powder-bar" mirror with shelf and light—away from wash basins to keep traffic *moving*.

Talk to a *specialist* on modern washroom equipment—call in your Scott Washroom Advisory consultant. At his fingertips he has a complete file of washroom fixtures. Above all, he can draw on the "know-how" gained servicing and supplying more than half-a-million washrooms. Get *all* the details—*based on actual experience!* Contact Washroom Advisory Service, Scott Paper Company, Chester, Pa.

Send for FREE Leaflet... "Plant Washroom Designing"

Washroom Advisory Service,
Dept. PA10
Scott Paper Company
Chester, Pennsylvania

At no cost or obligation, please send me your study of personnel, traffic and maintenance problems, *"Plant Washroom Designing."*

Name _____

Company _____ Title _____

Address _____

City _____ Zone _____ State _____

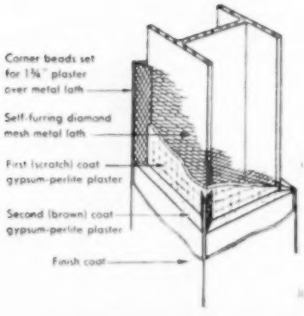
SCOTT
Symbol of
Modern Washrooms

"Washroom Advisory Service" Reg. U. S. Pat. Off.

Gold Bond
metal lath and plaster
gives steel columns

4-HOUR FIRE RATINGS

with nippers and trowel!


Corner beads set for 1¾" plaster over metal lath
Self-furring diamond mesh metal lath
First (scratch) coat gypsum-perlite plaster
Second (brown) coat gypsum-perlite plaster
Finish coat

You'll build or remodel better with Gold Bond

Here are the advantages of specifying Gold Bond Metal Lath and Plaster fireproofing for steel columns:

1. A 4-hour fire rating can be achieved with 1¾" Gold Bond Gypsum-Perlite Plaster on self-furring diamond mesh lath.

2. Dead load is reduced—33 lbs. per lineal ft. of column with Metal Lath and Plaster against 249 lbs. per lineal ft. with concrete. This can result in savings in structural framing.

3. Savings in cost of fireproofing materials.

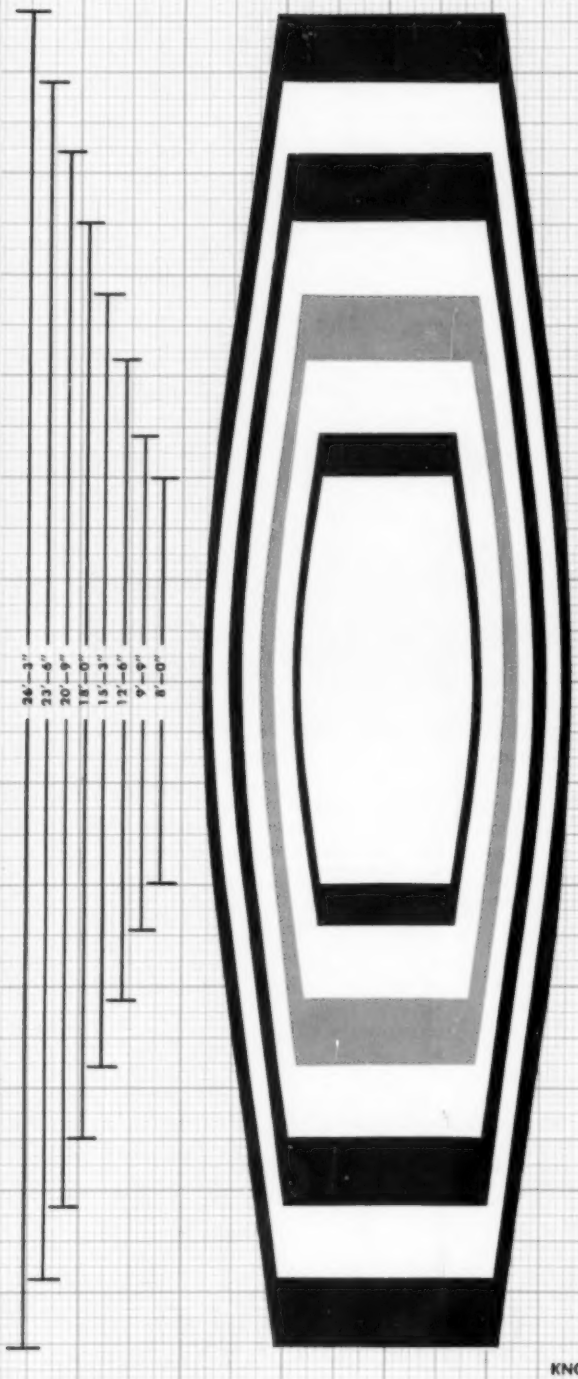
4. Application is easy, cuts labor costs.

Write our Architect Service Department for complete details.

Gold Bond Metal Lath and Accessories are available for immediate delivery.

NATIONAL GYPSUM COMPANY • BUFFALO 2, NEW YORK

Lath, Plaster, Lime, Sheathing, Gypsum Roof Decks, Wall Paint, Textures, Masonry Paints, Rock Wool Insulation, Metal Lath, Sound Control Products, Fireproof Wallboards and Decorative Insulation Boards.



Conference tables in a practical boat-shape of handsome visual simplicity. Designed to meet the requirements of group discussion in contemporary offices. A versatile collection, offering a choice of birch, walnut, cherry, teak, and other woods, with table and chair bases in metal or wood.

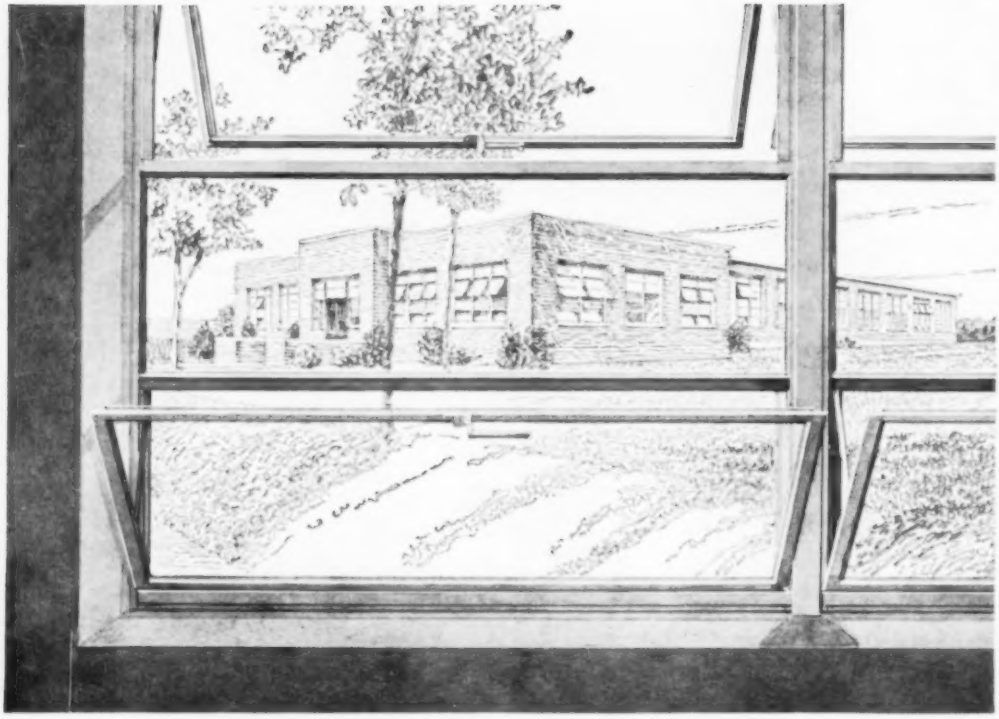
KNOLL

Knoll Furniture

Knoll Fabrics

Knoll Planning Unit

KNOLL ASSOCIATES, INC. • 575 MADISON AVE., NEW YORK 22, N.Y.



The Walton Company, Hartford, Conn. Consulting Architects: Moore & Salsbury, West Hartford. General Contractors: Bartlett-Brainard Company, Hartford. Engineers: Buck & Buck, Hartford.

When building budgets are tight, make sure of value. Initial price is only one factor — it is quality that determines total cost through the years. Take windows for example. The industrial building shown above enjoys abundant daylight and controlled, natural ventilation through efficient Lupton Projected Steel Windows.

Competitively priced, their simplicity of design, deep ventilator members, welded ventilator construction and easy operation means long life with minimum maintenance expense. Like all windows in the extensive Lupton line they are a quality product, precision engineered for trouble-free service.

From the basic metal bars — in shapes especially designed for windows — to final factory inspection — Lupton Metal Windows benefit through over 40 years manufacturing experience. Owner satisfaction is assured.

The Projected style is only one type offered in Lupton Steel and Aluminum Windows for residential, commercial, institutional, educational and industrial buildings. For complete specifications, contact the local Lupton Representative, write for the General Catalog, or see it in Sweet's.

MICHAEL FLYNN MANUFACTURING COMPANY
700 East Godfrey Avenue, Philadelphia 24, Penna.
Members of the Metal Window Institute and Aluminum Window Manufacturer's Association

LUPTON
METAL WINDOWS

Macy's Flatbush Store
Brooklyn, New York

Architects and Engineers:
Voorhees Walker Foley & Smith

modern design and Canvas

Among the materials which help contemporary architecture combine function and beauty, none can match CANVAS in providing maximum design flexibility. Awning fabrics lend color and texture, permit greater freedom in the use of glass by economically solving problems of solar heat control.

Voorhees Walker Foley & Smith chose Canvas as a colorful companion to glass . . . for transparency tempered with shade. These materials, gracefully blended, have played important roles in meeting Macy's specifications for an outstanding modern store design.

FREE: Write today for our new brochure on Canvas applications. Contains original and practical ideas, plus helpful instructions for specifying Canvas.

CANVAS AWNING INSTITUTE and NATIONAL COTTON COUNCIL
P. O. BOX 18 MEMPHIS, TENN.

Your Progress Report from Honeywell

Electronics control the

That electronic *tomorrow* you've been hearing so much about is here *today* in the highly specialized field of temperature control.

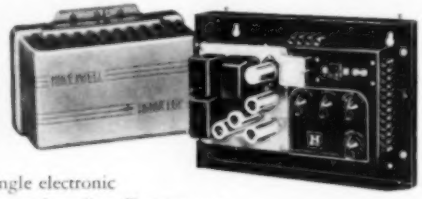
On this page you will see five remarkable electronic controls designed by Minneapolis-Honeywell, a pioneer in the field of electronic research.

Electronic controls are controls that have no moving parts; controls that provide faster action, greater accuracy, wider versatility, and many times more sensitivity. Field performances demonstrate that they also give lasting service with practically no maintenance.

For the architect and the builder, they not only provide greater design freedom, but open a whole new concept in comfort for clients.

Electronics control the temperature today!

Electronic Air Conditioning Control



Electronics has achieved results in air conditioning control never before thought possible!

No bimetal, no mercury, no bellows are used! A single electronic thermostat, *having no moving parts*, controls both heating and cooling. Temperature changes are "felt" by a resistance wire, amplified by an electronic panel, enabling the thermostat to provide precise, pinpoint control over heating and air conditioning dampers and valves.

The system has a much faster reaction to changes in load, since electronic thermostats react to temperature changes *many times* faster than ordinary, mechanical types; there's no temperature overshoot; no waste of warm or cool air; increased all-around operating efficiency; little or no maintenance costs; more modern, compact design.

Electronic Weathercaster

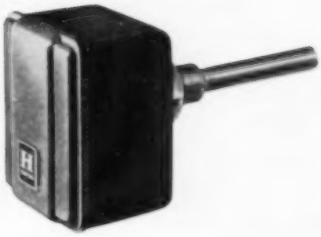
One of the greatest advances in home heating control in the last thirty years!

This amazing control, a part of Honeywell's complete Electronic Moduflow system for controlling home temperatures, is stationed *outside the house*. From its outside observation post, it "tips off" the heating plant ahead of time on changes in the temperature, by sending *electronic impulses* to the controls inside.

The Moduflow system with the Electronic Weathercaster can be adapted to practically any type home, or any type fuel. It's simple to install – profitable – practical – years ahead.

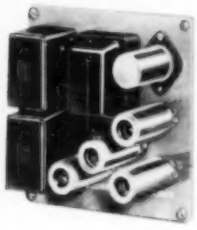
temperature today!

Electronic Insertion Thermostat



Honeywell's versatile Electronic *Insertion* Thermostat performs many functions in Electronic Air Conditioning Control Systems—from that of an outdoor master thermostat to that of low limit control in a discharge air duct or of a submaster thermostat in the water supply to a heating or cooling coil. Adjustments in the central Electronic Control Panel select the specific temperature operating range of the thermostat required for the particular function.

Electronic Flat Plate Relay



The Electronic Relay is the heart – the *magic brain* – of the Electronic Control System!

Incorporated into a suitable panel, it receives and coordinates messages from indoor and outdoor thermostats. Accordingly, it positions motorized dampers and valves, or operates heating or cooling equipment. Many standard types of panels are available, for heating, cooling or Summer-Winter air conditioning systems.

Special panels can be provided for unusual applications.

Electronic Humidity Control

Proven over *one hundred times* more sensitive for controlling humidity than conventional mechanical systems!

Maintains humidity within a fraction of a per cent, or corrects for the slightest change, with no waste or overshoot. Has no moving parts, and can be used with electric, pneumatic or electronic systems.

It's a complete electronic system that keeps humidity right on the beam – whether for humidifying or *dehumidifying*.

For further information and application data on the five remarkable electronic controls shown here, call your nearest Honeywell office—there are 96, located throughout the country. Or else fill out and send coupon at right.

MINNEAPOLIS **Honeywell**

First in Controls

MINNEAPOLIS-HONEYWELL REGULATOR CO.
Dept. PA-10-207, Minneapolis 8, Minn.

Gentlemen: Please send me information on the Electronic Controls I have check-marked here:

- ☐ Electronic Weathercaster
- ☐ Electronic Air Conditioning Control System
- ☐ Electronic Humidity Control System

*Name*_____

*Firm Name*_____

*Address*_____

*City*_____ *Zone*____ *State*_____

CENTRAL UNION TERMINAL
Toledo, Ohio
New York Central Railroad

Architect:
R. L. CORSBIE, *formerly N. Y. Central staff*

General Contractor:
DUFFY CONSTRUCTION CORP.
NEW YORK AND CLEVELAND

Roofing Contractor:
WARNKE BROS. CO.
TOLEDO

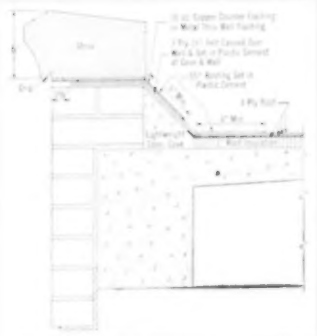
THIS *Roof* WILL MEET A MILLION TRAINS

Trains come in and trains go out at a rate of more than 100 every day at Toledo's modern new Central Union Terminal. Twenty years from now, the Ruberoid Built-Up roof, which covers the terminal and eight adjoining buildings, will still be meeting the trains. Architect R. L. Corsbie specified a Ruberoid Coal Tar Pitch and Tarred Felt Roof with a 20-year bond.

300,000 Toledoans are justly proud of their new station. Passengers enjoy every comfort and convenience . . . mail and freight are handled speedily and efficiently. Ruberoid is also proud to have contributed to this project—the new showplace of a busy, progressive city.

In other cities from Portland, Maine, to El Paso, Texas, architects are finding the answers to their roofing problems in "Ruberoid Built-Up Roofs and Flashings". This 126-page book contains 37 different roofing specifications, including promenade, water-cooled and garden roofs. In addition you will find helpful construction details and flashing specifications. Write today for your copy of the 1952 edition. We will also send you a Ruberoid Built-Up Roof Selector, an automatic index to the roofing book. For further information see your Ruberoid roofer or Sweet's Architectural Catalog, Section 8A/RU. The Ruberoid Co., 500 Fifth Avenue, New York 36, N. Y.

RUBEROID RECOMMENDATION
A Typically Helpful Ruberoid Detail



THE RIGHT ROOF FOR ANY JOB — FROM ONE SOURCE

Ruberoid makes every type of built-up roof — Smooth Surfaced Asbestos, Coal Tar Pitch with gravel or slag surfacing, and smooth or gravel-and-slag surfaced Asphalt . . . in specifications to meet any need. Ruberoid Approved Roofers are not prejudiced in favor of any one type. You are assured of centralized responsibility, smoother operation, uniform quality with Ruberoid built-up roofings.

Built-Up Roofings

The RUBEROID Co.

ASPHALT AND ASBESTOS BUILDING MATERIALS

CUT voltage loss to a minimum

with re-designed high efficiency feeder busduct

IT'S THE LAST WORD in efficient, flexible and economical power distribution from service entrance to distribution center, from generator to switchboard and from switchboard to distribution center.

Re-designed, inside and out, to assure maximum efficiency, FA High Efficiency Feeder Busduct has proven, in actual tests, that it will *reduce voltage loss to less than 2 volts per 100 feet at 80 percent power factor.*

Made for either indoor or outdoor installation, this new, more efficient method of power transmission has smaller size enclosures, less weight, and perforated sectional covers — top and bottom — for maximum heat dissipation.

Conductors are insulated with varnished cambric tape and plastic type tape for maximum protection. Joints are electrosilver plated (by immersion) for better low resistance contact and secured by either two or four brass jam bolts that fit into elongated fastening holes to allow for expansion, and phosphor bronze-cupped washers to maintain pressure.

The fact that sections can be run either vertically or horizontally, up and around pipes and other difficult angles and through walls, floors and ceilings, makes this type FA Feeder Busduct even more desirable.

FA High Efficiency Feeder Busduct is available in capacities, from 600 to 4,000 amps., 600 volts single phase for welder service, three phase for power, three-phase, four wire service for light and power.

For additional details, consult your nearest FA representative listed in Sweets. He'll gladly tell you more about this modern, more efficient system of power and light distribution.

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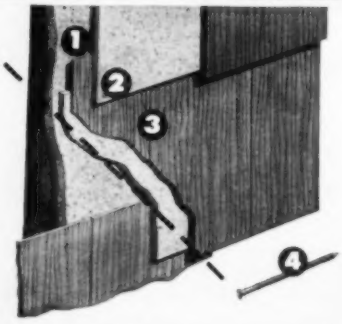
1. Bildrite Sheathing
2. Shingle-Backer
3. Outer-course Shingles
4. Grooved Nail

Accepted Application Method. Apply Shingle-Backer so that joints center on studs. Nail with 8d galvanized box nails, at bottom of unit at each stud. Nail through Bildrite into stud . . . 4 nails per piece.

Nail exposed shingles with 6d, small-headed annular ring galvanized nails applied 1½" above butt-line. For first course of shingles, face-nails should penetrate cant strip; for other courses, nails penetrate *both* layers of Shingle-Backer at overlap.



First, Bildrite Sheathing. Goes up faster, easier. Cuts application time as much as 50%. Four-foot sheets have twice the bracing strength of horizontally-applied wood sheathing. Waterproofed throughout. No matching loss or waste. Helps guard against condensation. Has more than twice the insulation value of wood sheathing.

Shingle-Backer offers extra beauty, and comfort at a saving!

Insulite's new method of applying outer-course shingles over Insulite Shingle-Backer and Bildrite Sheathing cuts sheathing and under-coursing time as much as 50%; increases bracing strength; doubles insulation value; produces deep, even shadow-lines—saves $80 to $120 on the average home!

Facts For Architects. The Insulite Technical Service Department will gladly supply you with complete data on this new, accepted double-coursed shingle application method developed by Insulite. Please have your secretary write Insulite, Minneapolis 2, Minnesota.

BUILD AND INSULATE WITH DOUBLE-DUTY

INSULITE

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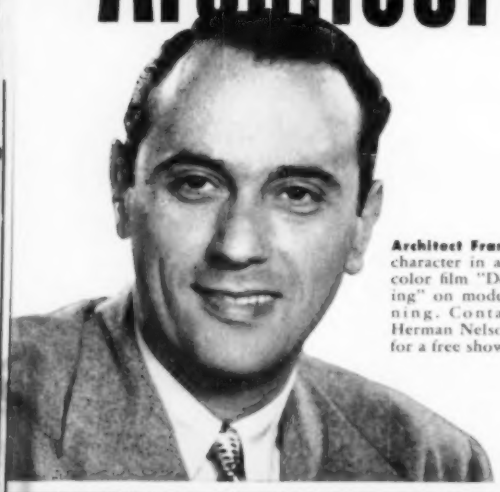
INSULITE AND BILDRITE ARE REG. T.M. U.S. PAT. OFF.

Then, Insulite Shingle-Backer. Handy four-foot panels apply faster and easier than wood under-course shingles... reduce application time by half. Produce deep, even shadow-line. Eliminate waste. Waterproofed throughout. Shingle-Backer and exterior shingles combined, have approximately twice the insulation value of double-coursed wood shingles.

INSULITE DIVISION, Minnesota and Ontario Paper Company, Minneapolis 2, Minnesota

Architect Franklin knows



Architect Franklin is the lead character in a new 25-minute color film "Design for Learning" on modern school planning. Contact your local Herman Nelson representative for a free showing.

"Before I design a school, I talk to teachers. These talks started me looking for a system which would handle the heating, cooling and ventilating problems of classrooms on an individual basis. I found that system in Herman Nelson DRAFT|STOP, in my opinion the most efficient automatic system ever devised.

"The heart of the system is the unit ventilator which responds automatically to the signals given by the thermostat in each room. Outdoor air is drawn in through a filter to clean and purify it and then passed over a heating element. Fans discharge the air toward the ceiling, gently, imperceptibly, at just the velocity needed for proper distribution.

"And DRAFT|STOP traps cold air created by big window areas. This eliminates cold legs and uneven

Spacious windows create no draft problems at the Lowell Elementary School, Sidney, Ohio. Here, as in many up-to-date schools, the Herman Nelson DRAFT|STOP system is at work insuring perfect indoor climate for better work and study. Superintendent of Schools, H. C. McDermott; Architect, Freytag and Freytag; Consulting Engineer, Schweiger, Heapy & Associates.

Herman Nelson Laboratory School. Through intensive instrumentation, the company's research staff has found that even in severe weather there is a necessity for room-by-room control of both heating and cooling. DRAFT|STOP is backed by years of this type of scientific investigation.

DRAFT|STOP

room temperatures. So it's no wonder I specify the Herman Nelson DRAFT|STOP system for schools. It is the *only* system which automatically keeps heating, ventilating and cooling in perfect balance—always."

Like Architect Franklin, hundreds of people entrusted with the responsibilities of school design and construction are turning to Herman Nelson for a truly modern environment control system—for a system which offers the perfect indoor climate for work and study.

If you are concerned with a new school program or with modernization, it will pay you to investigate scientific DRAFT|STOP. Write Dept. PA-10, today. Herman Nelson Division, American Air Filter Company, Inc., Moline, Illinois.

Our Lady of Providence High School, Clarksville, Indiana, offers its students the best in modern planning and design. Contributing to this "harmony for learning" is the wall-to-wall Herman Nelson DRAFT|STOP system that insures health and comfort through complete control of heating, ventilating and cooling at all times. Principal, Sister Marie Helen; Architect, Thomas J. Nolan & Sons.

Facade of Our Lady of Providence High School, Clarksville, Indiana, emphasizes simple lines and wide expanse of windows. Provision for constantly trapping the cold air downdraft created by the large areas of glass is offered only in the Herman Nelson DRAFT|STOP System.

Coast-to-Coast—Schools Choose DRAFT|STOP. Here are a few of the schools where heating, ventilating and cooling are provided by the Herman Nelson DRAFT|STOP System.

Fairview School Addition
Denver, Colorado
Summit School
Summit, Illinois
Public School No. 56
Indianapolis, Indiana
Hayes School
Davenport, Iowa
New Elementary School
Brewer, Maine
Eastern Suburban Junior High School
Silver Springs, Maryland
Plainville School (Elementary)
Plainville, Massachusetts
John Ericsson Elementary School
Minneapolis, Minnesota
Our Lady of Lourdes School
Kansas City, Missouri
Hillsboro Elementary School
Hillsboro, New Hampshire
De Cou School
Trenton, New Jersey
Goldwin Smith Hall
Cornell University
Ithaca, New York
Maple Heights High School
Maple Heights, Ohio
Fifth Avenue Elementary School
McKeesport, Pennsylvania
St. Augustine School
Providence, Rhode Island
Garfield Grade School
Sioux Falls, South Dakota
Woodmont School Addition
Nashville, Tennessee
St. Patrick's School
Pasco, Washington
East School District No. 1
Monroe, Wisconsin
Upton High School
Upton, Wyoming

DRAFT|STOP HERMAN NELSON

SYSTEM OF CLASSROOM HEATING AND VENTILATING

A Program for 30 million new Americans

LISTEN to the voices of 30 million new Americans. They are answering the pessimists who say we are threatened with depression because we can't keep our farms and factories busy.

Let these pessimists read the future in the census returns. There is a tremendous upsurge in our population. Last year nearly 4 million babies were born. By 1960 we shall total 170 million people--30 million more than when war ended in 1945. This adds to our domestic market more people than there are in Canada and Australia combined.

Providing for these 30 million new Americans can keep our production machinery going at capacity. They call for new hospitals, schools and churches. Larger families need bigger houses to replace post-war houses that are too small now. More and bigger families need improved home equipment and more new automobiles. In short, to maintain and improve living standards for our children, we must work harder than ever before. To supply the needs of our 1960 population, including adequate national defense, it is estimated that the productivity of the individual worker must increase at least 30%, with additional investment of over 200 billion dollars in capital facilities.

There should be no room in this picture for depression. But we must have economy in government, elimination of waste and extravagance and a reduction of taxes and public debt. If we encourage private incentive, thrift and investment, we can bring about the greatest advance in health, wealth and happiness that America has ever known.

QUALITY YOUNGSTOWN SERVICE

The Youngstown Sheet and Tube Company

General Offices--Youngstown 1, Ohio

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MANUFACTURERS OF CARBON ALLOY AND YOLOY STEELS

RAILROAD TRACK SPIKES - CONDUIT - HOT AND COLD FINISHED CARBON AND ALLOY BARS - PIPE AND TUBULAR PRODUCTS - WIRE - ELECTROLYTIC TIN PLATE - COKE TIN PLATE - RODS - SHEETS - PLATES.

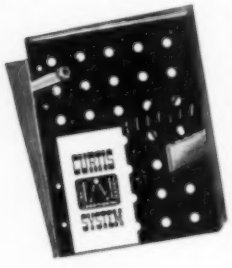
better lighting – less noise – in ONE system

The System provides recommended levels of quality illumination for true Eye-Comfort, with effective acoustical treatment which eliminates excessive sound reflections and the annoyance and distractions which sound creates.

CURTIS LIGHT CONDITIONING SYSTEM

LIGHT CONTROL

The lighting system* of this revolutionary new method is an extendible arrangement of channels carrying the control equipment and wiring. T-12, 96-inch, 72-W. slimline lamps are mounted like ladder rungs between and at right angles to the Curtistrip channels. This system is supplied completely wired with ballasts and lampholders. All metal parts are finished baked white "Fluracite" enamel.



*Listed by Underwriters' Laboratories, Inc.

CURTIS LIGHTING, INC.
6135 W. 65th Street
Chicago 38, Illinois

SOUND CONTROL

The acoustical element consists of a series of vertical panels positioned between the fluorescent lamps to provide recommended shielding and adequate sound absorption. These panels are constructed of high quality, high reflectance, perforated acoustical material with washable white flame retarding finish, supported by a rolled steel frame.

A 20-page comprehensive bulletin with photographs and technical diagrams is available without obligation. Write Dept. 154-18.

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...have the
In construction products CECO ENGINEERING
makes the big difference

answers on condensation

In a few short weeks "that man" will be here again . . .

"Old Man Winter" . . .

And with him will come all the problems of condensation in the home.

But you can have the answers to what causes it and more important

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Ceco Steel Products Corporation offers you a comprehensive booklet

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can free their homes of excessive moisture build-up . . .

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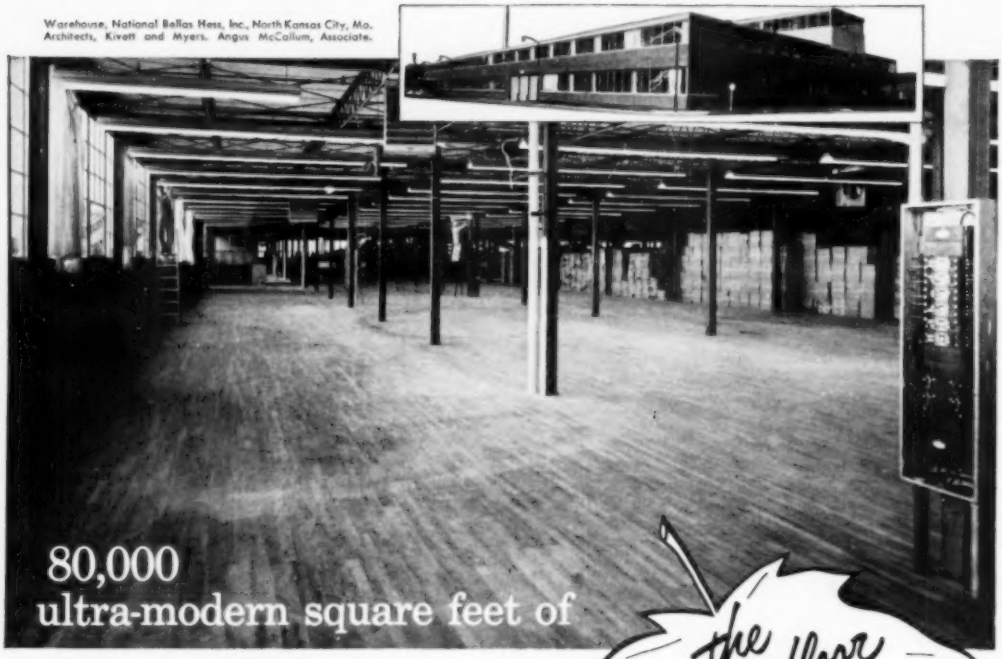
Warehouse, National Bellas Hess, Inc., North Kansas City, Mo.
Architects, Kivett and Myers. Angus McCallum, Associate.



80,000
ultra-modern square feet of

NORTHERN HARD MAPLE

the finest floor that grows

• This modern warehouse, with its many interesting features of design and construction, drew national attention in one of the architectural magazines. For one thing—it provides nearly two acres of floor, with 200 lbs. per sq. ft. load rating. **MFMA** Third Grade 25/32" x 2¼" Northern Hard Maple flooring is laid over 2½" x 6" T & G sub-flooring.

The selection of this true economy grade of finish flooring will surely prove a wise decision over the years, for **MFMA** Third Grade is a thoroughly good, *sound* grade in every respect. The *resilient* smoothness of close-grained Northern Hard Maple speeds traffic and promotes comfort. Its cheerful brightness aids illumination. Its warmth, its tightness and its high resistance to denting and abrasion ease maintenance and—"there's always a new floor underneath" when refinishing becomes necessary. The **MFMA** trademark guarantees true dimensioning and conscientious grading. Northern Hard Maple flooring is available in regular Strip, Block and Patterned design.

See Sweet's
Arch. 13k-Ma

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Suite 583 Pure Oil Building
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CHICAGO 1, ILLINOIS

Floor with **NORTHERN HARD MAPLE** *BEECH AND BIRCH*

Daniel, Mann, Johnson and Mendenhall, *Architects and Engineers*

MODERN DOOR CONTROL BY *LCN* · CLOSER CONCEALED IN HEAD FRAME

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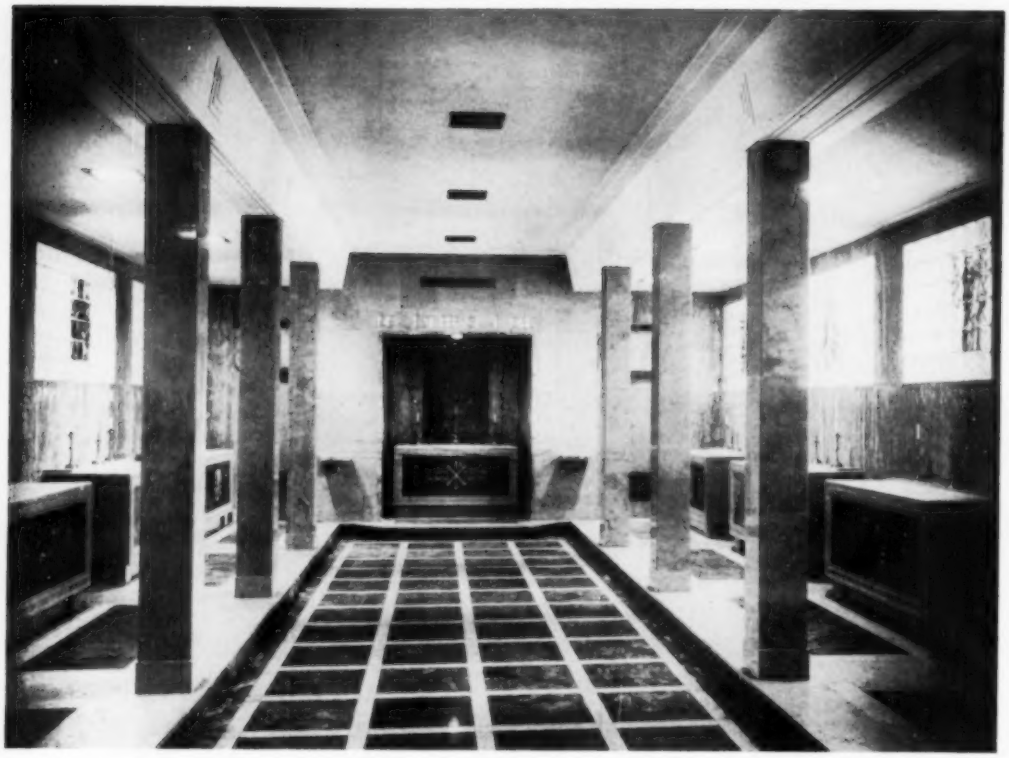
LCN CATALOG 11-E ON REQUEST OR SEE SWEET'S • LCN CLOSERS, INC., PRINCETON, ILLINOIS



ST. WILLIAM'S HALL, BRIGHTON, MASSACHUSETTS ARCHITECTS: MAGINNIS & WALSH

marble... *the most beautiful of all materials is also the most appropriate in the church*

Judge it for beauty, performance, propriety.

Judge it for ease and low cost of maintenance —

You'll find that Marble is the finest choice, the only choice.

"There is no substitute for Marble".

The Marble Institute of America protects your heritage in one of America's great industries. Each of its members is pledged to provide the finest materials, finished in America, by Americans, no matter what its source. You can depend on the integrity of your local M. I. A. member.

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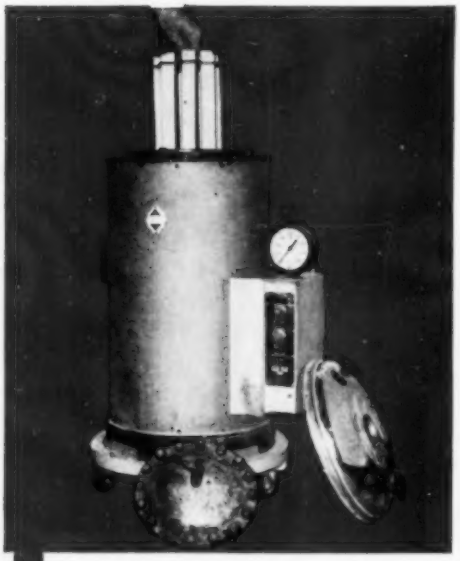
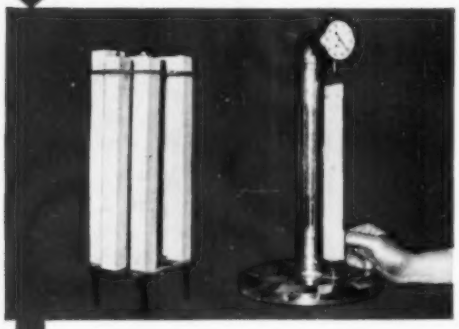
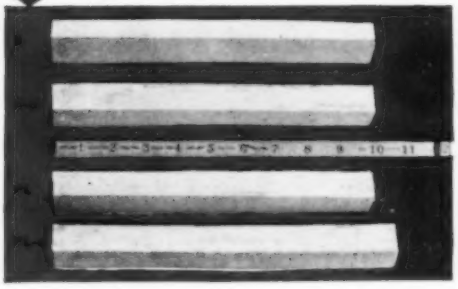


The autoclave test requires the use of a high pressure steam chest (above). Masonry cement bars approximately 1" x 1" x 10" are exposed to 295 lbs. steam pressure, 420° F., for 3 hours. Measurements of the bars are made before and after test as shown below.



Below: Bars of Brixment, and of Portland cement and a lime which does not meet the autoclave test. The expansion of the Portland cement and lime bar, after autoclaving, is quite evident.

B—Brixment, not autoclaved.
B-a—Brixment, autoclaved.
PL—Cement and lime (1 to 1) not autoclaved.
PL-a—Cement and lime (1 to 1) autoclaved.



BRIXMENT MEETS AUTOCLAVE TEST!

At its meeting in June, the A.S.T.M. Sponsoring Committee on Masonry Cement recommended a new specification requirement for masonry cement — an autoclave test for soundness.

Sound mortar is essential for strong durable brickwork. To be sound, mortar must be free of constituents which may cause abnormal expansion after long exposure to weather.

Unsoundness in mortar material is readily detected by the autoclave test. This severe test rapidly accelerates the chemical reaction of mortar materials, and the slightest unsoundness is immediately revealed by excessive expansion.

Brixment more than meets the autoclave test. Therefore when Brixment is used, sound mortar and strong, durable brickwork are assured.

Louisville Cement Company, Incorporated
Louisville 2, Kentucky

industry's New work

National Electric "Plug-In" Busway and "Lo-Loss" Feeder Busway... The only busways with such rugged construction!

National Electric Busways are especially designed to meet the rugged requirements of American industry. They offer the most economical, convenient, flexible and salvable layout possible for industrial or commercial installations. Check these *money-saving* "workhorse" features:

TOUGH—National Electric busway incorporates a heavy 12 gauge steel channel to independently support and protect the insulator.

EFFICIENT—With "Lo-Loss" Busway, voltage drop is less than 2.2 volts per 100 feet for a concentrated load. Where the load is distributed, the voltage drop is approximately 1 volt per 100 ft.

FLEXIBLE—"Lo-Loss" is approved by Underwriters' Laboratories for horizontal or vertical mounting.

CONVENIENT—Factory fabricated sections go up *quick*. With "Plug-In" Busway, machinery can be "plugged-in" anytime without shutting down the production line. Especially convenient for congested areas.

Approved by the Underwriters' Laboratories, Inc.

"PLUG-IN" BUSWAY

- Rolled Edge Copper Bus Bars.
- All Bus Bar Joints are electro-silver-plated and have a heavy coat of silver.
- Simplified, fool-proof, sliding type "plug-in" opening covers. No removable parts or springs.
- Neutral grey finish baked to a hard surface inside and out.
- Insulators supported in a sturdy 12 gauge steel channel frame withstand rough handling during shipment.

"LO-LOSS" FEEDER BUSWAY

- "Lo-Loss" Feeder Busway is economical and efficient for conducting long runs of alternating current where voltage drop must be kept to a minimum. It is easy to install because single bolt contacts are used when joining sections.
- "Lo-Loss" Feeder Busway is designed for transmission of electrical current up to 4000 Amperes at 600 Volts or less.

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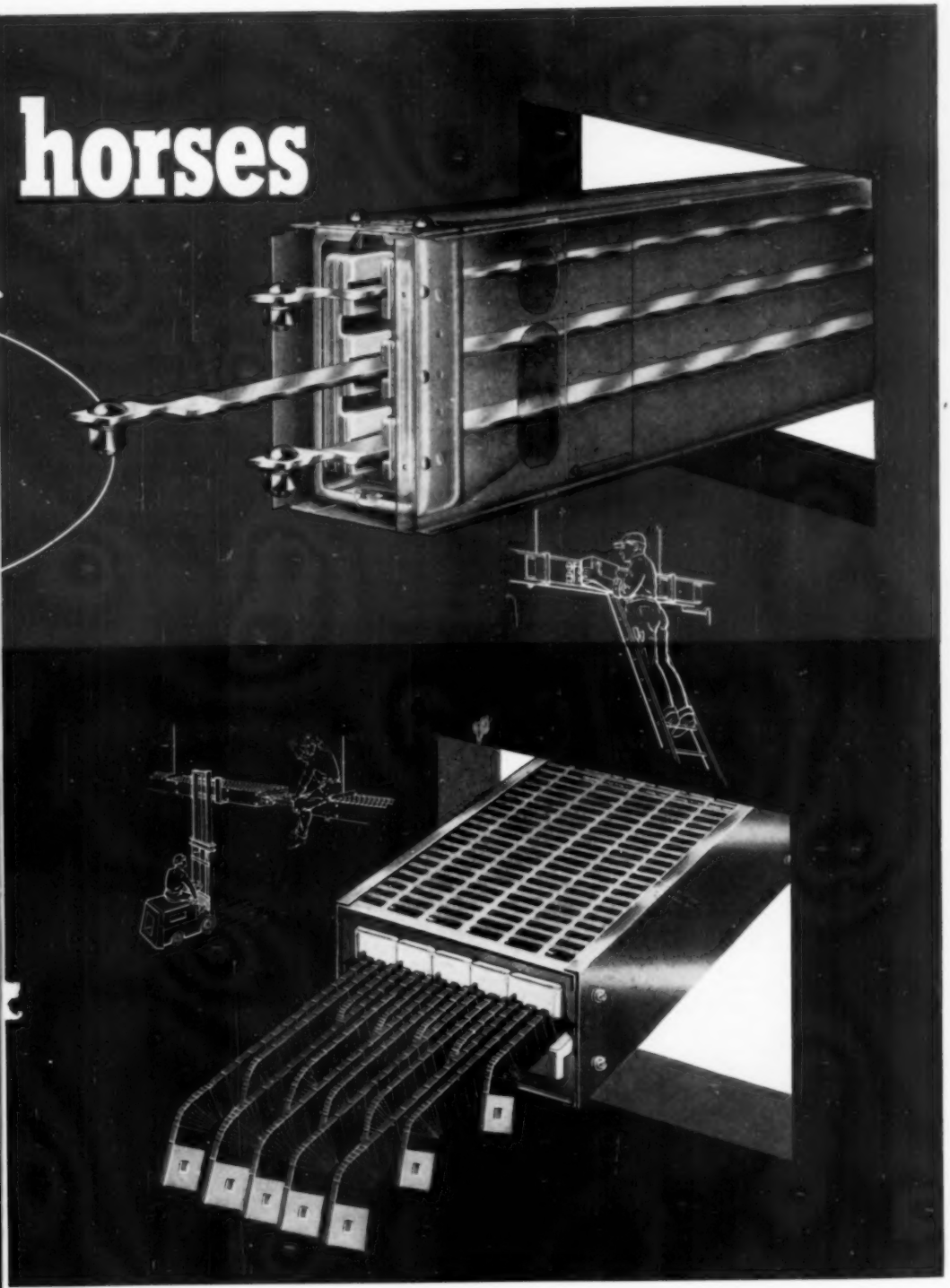
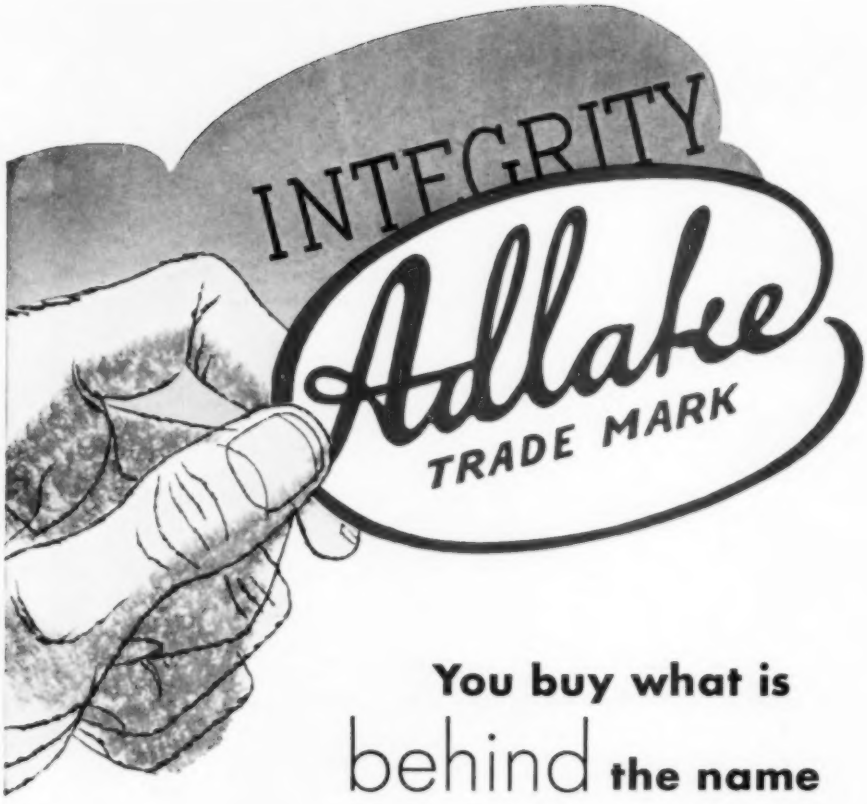




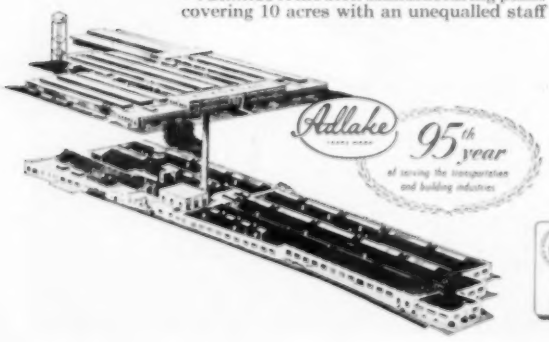
You buy what is behind the name

When you buy an ADLAKE product, you receive something with it that never shows up on an invoice . . . the integrity of the manufacturer.

Integrity is made up of many things. In the case of The Adams & Westlake Company, it's a combination of

- **Experience** Almost a century of manufacturing know-how is behind each ADLAKE product.
- **Facilities** A modern manufacturing plant covering 10 acres with an unequalled staff of specialists to maintain the high level of ADLAKE workmanship.
- **Good Faith** ADLAKE's policy has always been to keep faith with its customers. For that reason, no effort is spared to make sure that every purchaser gets precisely what he bargained for and that he is always satisfied.

This integrity is an integral part of every ADLAKE Aluminum Window . . . as architects, builders and managers of schools, hospitals and commercial buildings all over the nation can testify!



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Adams & Westlake
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QUALITY APPROVED

sound-conditioning materials

by Paul J. Washburn*

One of the recurring problems which confront the architect is the specification of a particular type of acoustical material for a particular job. When the architect specifies an acoustical material, he is interested, primarily, in the reduction or control of sound. However, a selection based solely upon acoustical efficiency may sometimes be a needlessly expensive item. A factor that occasionally goes unheeded by the architect is that a difference in noise reduction of .05 between two materials cannot be detected by the human ear, while the cost difference might be quite significant.

As the architect knows, no one material will solve every architectural problem. For this range there are available today many acoustical materials, each with its own important characteristics. As an aid to the architect, we will summarize, generally, in this article the different kinds of materials and where they may be installed to produce the best results. Dut to the fact that so many variables are involved, such as noise coefficients, thickness, light reflection, moisture resistance, insulation value, installation, maintenance, and fire resistance, it is unfair and incorrect to say that any one type of tile is best suited for a particular type of job. Nevertheless we will try to present a comprehensive generalization as accurately as possible.

what are acoustical materials?

Acoustical materials are made from a great variety of substances and combinations of ingredients. Very efficient sound-absorbers have been made from vegetable fibers such as bagasse or wood.

Bagasse is the fiber residue of sugar cane after the juice has been extracted Wood fibers are produced from various types of trees in the south and the northwest. Hair felt is still used, but not to the extent of former years.

Mineral fibers, such as asbestos, glass, and mineral wool, enter into many compositions, as do the vermiculite, pumice, and perlite aggregates. The binding agent can often contribute considerably to the sound absorption of a product; the porosity of materials is often increased by adding a foaming agent to the mix.

Practically all products listed and used as acoustical materials can be classified in three groups. In the order of use, they are:

1. Monolithic tiles, with or without perforations extending into the material.
2. Assembled units, consisting of perforated facings over an absorptive element.
3. Plaster compositions with acoustical properties.

The monolithic prefab tiles are by far the most widely used. For general application, this type has a number of advantages. Through adequate control of density, thickness, dimensions, and finishes during the manufacturing process, tiles with uniform absorptive characteristics and matching appearance can be produced in large quantities. Absorption capacities and characteristics are inherent in the tiles. Due to this possible precision in manufacture, their performance after installation can be relied upon to match that indicated by the standard test data on which they are rated.

Assembled units include the various combinations of sound-absorbing elements, such as rock-wool and glass-wool blankets, pads, or other materials with acoustically transparent facings, most of which are perforated. While a great many of these combinations are used in offices, some are designed primarily for broadcasting and recording studios, special music rooms, etc., where some controlled variation of sound-absorptive characteristics may be desirable. They are also used in general sound conditioning where the greatest possible sound-absorbing capacity may be required. By varying the thickness of the sound-absorbing element and the spacings between the element, the wall, and the facing, some variation in the over-all absorption and the absorption at the different frequencies can be obtained. In practically all instances today, the facings used are some form of durable, perforated panel such as metal, asbestos board, or hard board. The original use of cloth, usually muslin, has been discontinued because of difficulties and expense in maintenance.

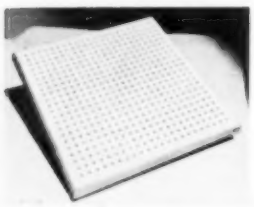
Plaster compositions broadly include the acoustical plasters and the various kinds of "sprayed-on" materials. The plasters are built up on the wall and ceiling surfaces in the usual way. The sprayed-on types are applied by special guns. These materials are characterized by their smooth, unbroken surfaces. Their limitations lie in the indeterminate absorptive characteristics and difficult maintenance. With this type, absorption depends critically on proper application and, due to their fine surface porosity, paintability is narrowly restricted.

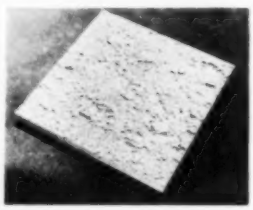
Practically all sound-absorbing materials owe their efficiency to the fact that they are highly porous. The absorption coefficient of a porous material depends, in a rather complicated manner, on the thickness, the size of the pores, the ratio of pore volume to total volume, and the frequency of the sound. Although it is quite difficult to evaluate all of these factors with a view to predicting the absorption ability of a material, several approximate statements may be made. In the first place, so that the pores of a material can absorb sound effectively, they must communicate with each other and with the surface of the material. Secondly, the absorption increases with the thickness, particularly at low frequencies. At high frequencies, for some materials, an increase in thickness has little or no effect on absorption. Thirdly, the absorption increases up to a certain point with the degree of porosity, as measured by the rate at which air can be forced through. For a given type of material, the lower the density, the more porosity as measured by the rate at which air can be forced through it. If the size of the pores is increased beyond a certain point, however, producing an extremely loose-textured material, the absorption decreases. Fourthly, the absorption of practically all materials is greater for high frequencies than for low frequencies.

* Chairman, Technical Committee, Acoustical Materials Assn.

TYPES OF TILES AND THEIR CHARACTERISTICS

	cellulose-fiber tile	mineral tile
description	Most fiber tiles are made from the long, tough sugarcane fibers called bagasse, or from wood fibers. After fabrication, there are myriad minute interstices between the fibers throughout the entire tile. These tiny voids exposed by perforations give the tile its sound-absorbing qualities. All tile can be made termite-, fungi-, and dry-rot proof by special manufacturing processes.	Rock wool is the general component of mineral tiles and is felted in a manner similar to that used in the manufacture of wood fiber, but with the addition of a suitable binder. This binder is added to provide strength and toughness in the finished product. Mineral fiber tile is available with fissured surfaces or with perforated surfaces. Like the wood-fiber tile, sound is dissipated by friction in the minute interstices between the fibers, exposed by the fissures or perforations.
efficiency (noise reduction coefficient)	Most efficient at high frequencies and has a noise reduction coefficient in the range of .55 to .75.	Has high sound absorption for the middle and higher frequencies. Noise reduction coefficient, from .65 to .85.
cost	Low initial and installation cost. Varies from low to medium, depending upon method of installation.	Medium initial and installation cost.
moisture resistance	Has a moderate moisture resistance and can be used except where conditions of excess humidity prevail for long periods. Excessive moisture tends to destroy cement bond and warps most fibrous acoustical materials.	Moderate moisture resistance with safe margin for use under all normal humidity conditions. Not recommended for use in washing rooms or where it will be exposed to steam or constant high humidity.
light reflection	Has a rating of .76 to .80.	Good light reflection with a range of .78 to .84.
insulation value (thermal conductance)	Thermal conductivity ranges from about 0.30 to 0.40 Btu/hr/sq ft/in. thickness/degree F temperature difference.	Thermal conductivity ranges from about 0.40 to 0.50 Btu/hr/sq ft/in. thickness/degree F temperature difference.
fire resistance	It is a combustible tile but, when ordered with special paint finish, it is classified as slow burning.	It is classified as an incombustible tile.
maintenance	Easy to maintain, needs occasional cleaning. Can be repainted without loss of efficiency. Either oil- or water-based paints can be used and no special equipment is necessary. Brush or spray can be used.	May be cleaned with damp cloth or vacuum. Careful spray or brush painting will not affect efficiency of fissured material. Perforated material may be repainted repeatedly, without loss of efficiency, by spray or brush. Neither type should be used below wainscot height nor where subject to impact or abrasion.
installation	Can be cemented to existing surfaces, nailed or screwed to furring strips, and can be mechanically suspended.	Can be cemented to existing ceiling or mechanically suspended. Nailing is not recommended.
size	6" x 12", 12" x 12", 12" x 24", 24" x 24". Thicknesses: ½", ⅝", ¾", 1", 1¼". Butt-bevel edges, t & g edges.	12" x 12", 12" x 24". Thicknesses: ⅝", ¾", 13/16", 1". Bevel or square edges, edge-kerfed, spline-grooved.
general use	The low tile and installation costs of this material create a demand for its use, especially where a large area of ceiling space must be treated. Although it is one of the most widely used materials and can be found in almost every type of installation, commercial buildings and various types of institutional buildings are the principal users. A large variety of sizes, thicknesses, and efficiencies are available in the cellulose fiber type of acoustical tile; it is the low-price work horse of the industry.	Because of their mineral composition, these tiles will not support combustion when exposed to conventional fire-resistance tests. For this reason, they are used in theaters, restaurants, night clubs, and other places of business in which the public gathers and where fire safety requirements must be met. Fissured material is frequently used when appearance is a primary consideration. Perforated materials are used in commercial and institutional buildings and other areas requiring continued maintenance.

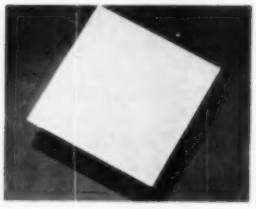


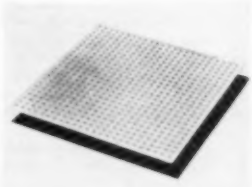


Perforated, wood-fiber tiles (as well as light-weight concrete masonry units) are the sound-absorbing materials specified for a laboratory (left).

Fissured, mineral-wool tiles that will not support combustion are appropriate for an automobile display room (right). Photos: courtesy of Johns-Manville Corp., Armstrong Cork Co.

description	glass-fiber tile	perforated-asbestos tile
	In the manufacturing process of glass-fiber tile, molten glass is drawn into fine fibers under controlled techniques. When combined with a small percentage of a stable binding agent, the glass fibers are compressed and bonded into board form. The boards are then cut into tiles of desired sizes and thickness and finished to required specifications.	Perforated, asbestos-board-type tile is made of asbestos and cement and is backed with an inorganic wool acoustical backing. It is manufactured in several thicknesses and the panels are perforated with small holes to allow the sound to be absorbed by the acoustical backing.
efficiency (noise reduction coefficient)	Most efficient in the middle frequencies. Noise reduction coefficients range between .65 and .85.	Most efficient in the middle and high frequencies. Has a noise reduction coefficient between .75 and .85.
cost	Medium initial and installation cost.	Medium initial and installation cost.
moisture resistance	Moisture resistance. Can be used in installations where varying conditions of humidity and temperature exist.	Excellent moisture resistance. Useful in places where continued high humidity and varying conditions exist.
light reflection	Has a rating of about .65 to .80.	Unpainted.
insulation value (thermal conductance)	Thermal conductivity about 0.24 Btu/hr/sq ft/in. thickness/degree F temperature difference.	Thermal conductivity about 0.24 Btu/hr/sq ft/in. thickness/degree F temperature difference.
fire resistance	It is classified as an incombustible tile.	It is classified as an incombustible tile.
maintenance	Can be cleaned with wallpaper cleaner or vacuum, and can be spray-painted without loss of efficiency. Tile should not be used on areas which are subject to physical abuse.	Easily cleaned and can be painted numerous times without loss of efficiency. Can be used where physical wear is present, as tiles will withstand hard usage.
installation	Can be cemented to existing ceilings and be mechanically suspended. Nails or screws not recommended.	Can be mounted on wood or applied with metal suspension system. Screwed or nailed to a framework of wood furring strips.
size	12" x 12", 12" x 24"; ¾", 1" thicknesses; bevel and square edges, edge-kerfed, spline-grooved.	12" x 12", 12" x 24", 24" x 24", 24" x 48". Thicknesses: 1 3/16", 2 3/16".
general use	Because this tile has an incombustible rating, it will be found in all types of installations that require flame resistance. Schools, public places, and offices are major users. Its good moisture resistance also permits use in places where humidity and dampness are prevalent. It is not recommended where physical wear will be encountered, such as gymnasiums or below wainscot height.	Because it does not retain moisture, it is especially useful in installations like swimming pool areas or restaurant kitchens. Its high acoustical efficiency has made it widely popular for scientific acoustical treatment in radio and television studios, concert halls, auditoriums, and in gymnasiums, music rooms, and on wall surfaces where hard wear or abuse will occur.

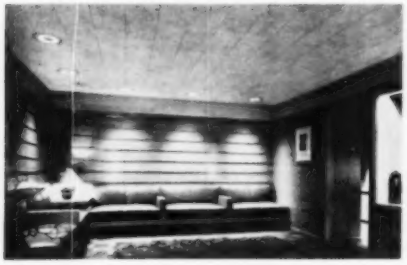


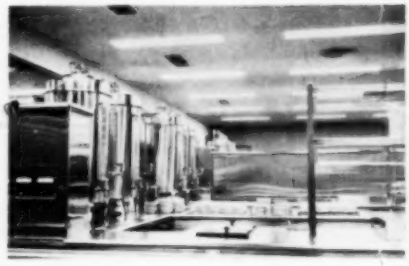


Glass-fiber tiles installed on ceiling of a reception room (left) can be cleaned with wallpaper cleaner or vacuum; should not be below wainscot height.

Easily cleaned and moisture-resistant asbestos-cement tiles are an excellent choice for kitchen ceilings (right).

Photos: courtesy of Owens-Corning Fiberglas Corp., Johns-Manville Corp.

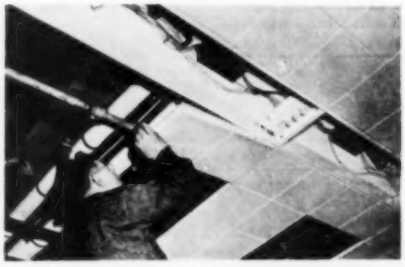


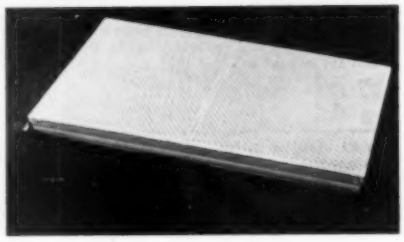


perforated-metal tile

description	The metal-type acoustical material consists of perforated metal with supporting flanges which provide structural strength, and a mineral-wool pad which absorbs sound. This tile is usually made of 26-gage steel or aluminum, with perforations to permit sound to reach the pad. It usually has a baked-on white enamel finish.
efficiency (noise reduction coefficient)	Highly efficient over entire frequency range although most efficient in low middle; has a noise reduction coefficient between .75 and .85.
cost	Generally higher initial and installation cost, compensated by high efficiency and removability features.
moisture resistance	Has moderate moisture resistance.
light reflection	Has a rating from .74 to .76.
insulation value (thermal conductance)	Thermal conductivity about 0.22 Btu/hr/sq ft/in. thickness of insulating material/degree F temperature difference.
fire resistance	It is classified as an incombustible tile.
maintenance	Easily repainted and washed; low maintenance cost.
installation	It is normally installed by mechanical fastening to furring channels or it can be fastened directly to existing ceilings.
size	Usually comes in only one size, 12" x 24", but bevel in middle gives appearance of two 12" x 12" units.
general use	The perforated, metal-type has the highest acoustical efficiency of commercial acoustical tile; however, it may also cost more than other types. It is used in installations where severe service may be encountered. As it is mechanically suspended, it can be taken down and moved to other areas. It is used quite frequently in large office and industrial plants. Office buildings use this material because it is particularly adaptable to air-conditioning systems, since special air-flow channels can be installed which allow cooled air to pass through the perforations into the room below.

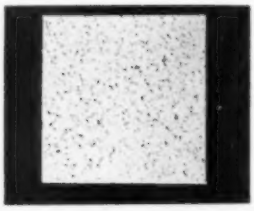
Perforated-metal tiles backed with sound-absorbing material have the highest degree of acoustical efficiency. Easily combined with other mechanical services (below), they are especially suitable for large office areas.
Photos: courtesy of Armstrong Cork Co.





cork tile

Cork tile is made entirely from selected cork particles ground to specific particle size, baked under heat and pressure to form blocks. While cork tile has excellent insulation value and moisture resistance, its use as an acoustical tile is limited for it has lower noise reduction qualities. However, because of its resistance to extreme conditions of moisture, it is used in swimming pools, commercial kitchens, high humidity test rooms, and special manufacturing areas. Its high insulation properties make it possible to apply the tile to the top story of a building that has no roof insulation. Except in cases mentioned above, where other factors beside noise reduction are primary, its use is restricted to special type projects.



Extreme resistance to moisture favors cork tile for swimming pool ceilings (right).
Photo: courtesy of Armstrong Cork Co.

INSTALLATION OF ACOUSTICAL MATERIALS

Just as there is sometimes a best type of acoustical material for a particular job, there is usually a preferred method for applying that material. Therefore, the system of installing an acoustical ceiling should be chosen with care, as a wise choice of method will mean not only a saving in time and money but will also result in a more serviceable installation.

As each structure has its special structural problems, it will sometimes be necessary to employ different methods of attaching the acoustical tile or a combination of several methods. These methods are suggested as possibilities rather than as standard operating procedures, and are covered in the general order of their cost, from lowest to highest.

cementing

In remodeling work it is very often possible to cement acoustical tile directly to the plaster ceiling. This is the most common of all methods and usually the least expensive. The plaster, however, must be in good condition since cementing requires a smooth, solid-base surface to which the tile can be applied. Where the ceiling has been painted, tests should be made to determine if the adhesive will bond satisfactorily. The recommended test is to install a single tile, leave it in place for 48 hours, then remove it. If the paint has not softened, it is considered safe to use the cement method.

nail to wood furring

Wood-furring strips, 1" x 2", may be used as a base for nailing or screwing the acoustical material where the ceiling surface is rough and uneven. The strips, however, should be shimmed so that they are perfectly level. In new construction, it is often possible to fur across the joists. Nailing methods have the advantage of slightly higher absorption efficiency. Building paper as a backing between the tile and the furring is used to avoid "breathing" through the joints of abutting tile.

cementing to gypsum lath

If the acoustical material is one that cannot be nailed, such as certain types of mineral wool tile, it may be best to install gypsum lath and cement the acoustical tile to it. This type of installation not only provides more rigid construction but has the added advantage of providing additional fire resistance.

screwing to gypsum board

The best method of applying a perforated, fiber tile material is accomplished by screwing the material to a base of gypsum board. The use of screws is one of the most secure methods of attaching an acoustical material.

cementing to brown coat plaster

For an acoustical ceiling requiring rigidity and a dependable fire stop, tiles can be cemented to the brown coat of plaster. This method will also reduce sound transmission through the ceiling.

mechanical suspension

Mechanical suspension systems do much to eliminate problems of ceiling design, and are adaptable to both old and new construction. They conceal overhead pipes, air-conditioning ducts, and electrical conduits, and produce a clean, modern appearance. Mechanically suspended ceilings are often used where old ceilings are too high. They are suited to receive trofer-type lighting fixtures and the extra space made available above the ceiling simplifies the installation or repair of these concealed fixtures. In addition, overall lighting in the room is often improved by a lower ceiling with good light-reflecting properties. Suspended ceilings usually do a better sound-conditioning job because the absorbent surface of the material is brought closer to the source of sound. In many cases, they make heating systems more efficient by reducing the volume of the room.

Mechanical suspension methods in old construction are likely to be more expensive because of the extra time and material necessary for each job. In new construction, however, money may be saved by eliminating plastering and other finishing. For example, ducts are concealed by the suspended ceiling for appearance.

H-runner system

There are several good ways of suspending acoustical materials mechanically. One of the most economical is the H-runner system which is rapidly erected because the materials are attached directly to the supporting members. Acoustical materials must be kerfed and back-cut to fit in the runner.

cementing to suspended gypsum board

Sometimes it is desirable to suspend gypsum board as a cementing base for the acoustical material to be used. This provides a nonbreathing ceiling and additional fire resistance. In the case of suspended mineral wool materials, this is probably the most desirable system to use.

cementing to dropped plaster ceiling

The use of a dropped ceiling of brown-coat plaster and cement application of acoustical tile is approximately in the same cost range as the preceding system. This method provides a solid base, a nonbreathing ceiling, and an excellent fire stop, as well as reducing sound transmission.

metal pan suspension system

Generally speaking, the suspension of metal pan materials is more costly than other methods but it has practical advantages for many installations. Quite often it is the most efficient for acoustical sound

Combined acoustical baffles and luminous ceiling provide a high degree of hearing and seeing comfort in this conference room (above).

Photo: courtesy of F. W. Wakefield Brass Co.

reduction. This special system allows the units to be taken down individually and moved for remodeling, or for quick access to pipes, ducts, and wiring. Access doors can be eliminated in this type of construction.

acoustical baffles

In certain types of occupancies, particularly in areas containing light manufacturing operations, it is often very difficult to install the conventional type of acoustical materials. The use of acoustical baffles, suspended absorbers, or space absorbers, then becomes both economical and effective. The presence of pipes and other obstructions frequently found in rooms of light manufacturing operations would make it both difficult and expensive to install acoustical tile over the entire ceiling area. The suspended absorbers are attached by means of wires or clips. These attachments may be used at spot locations on the ceiling or to the pipes that may already be present. An important additional merit of suspended absorbers is the fact that they may be installed quickly and easily if only temporary occupancy is expected. Also, as they can be hung at any desired level, they can be located near the source of noise. Excessive air currents in a room may cause them to be set in motion unless they are well supported.

Since the sound waves reach both sides of the absorbers, the efficiency of these units is enhanced. Another type of acoustical baffle is available, combined with a fluorescent lighting fixture. It is used in commercial areas, however, and not normally in the manufacturing areas of the kind described above. The vertical ribs of sound absorption support a suspended ceiling of translucent, corrugated plastic material behind which fluorescent tubes are located.

miscellaneous products

There is a number of additional products available. Most have limited sales, although they are adaptable for specific uses. Among these are products made of pumice or similar granules which can be molded into tile or special shapes. Although these products may be called ceramic, actually they should be placed in the category of mineral tile. Hair felt, particularly when mixed with asbestos fibers for fire-retardant features, is used as a flexible duct lining and other such applications. Materials, such as glass fibers and rock wool products in both the rigid and flexible types, are conventionally used for both the inside and outside of air-conditioning ducts, to reduce the noise that otherwise would exist in air-conditioning systems. All acoustical ceiling tiles, however, are rigid in character and normally come in the conventional 12″ x 12″ size.

SUMMATION

After receiving a description of the respective sound-conditioning products available—their size, efficiencies, appearance, etc.—the architect must then select one for his particular job. The factors which govern his decision depend largely upon the type of building designed and the amount of noise expected. For example, the acoustical materials to be selected for a school building should be based largely upon their efficiency, cost, and maintenance characteristics. The more efficient materials must be used in areas that contribute most to the noise problem of the school. Corridors, for example, can carry the noise throughout the building (especially into the adjacent classrooms) unless highly efficient acoustical materials are installed. Other noise centers include typewriter rooms, band rooms, music rooms, etc.; there, too, a material of greatest efficiency must be installed. On the other hand, a ½″- or ¾″-thick material can be used in classrooms where modest absorption is desired. Thus, by using more efficient materials in the classrooms, it will be easier to keep this part of the construction within the budget. In commercial buildings, the materials that provide the greatest efficiencies, best light reflection, and ease of maintenance should be specified for general offices and typewriter rooms; the more decorative materials are used for reception rooms, executive offices, conference rooms, etc.

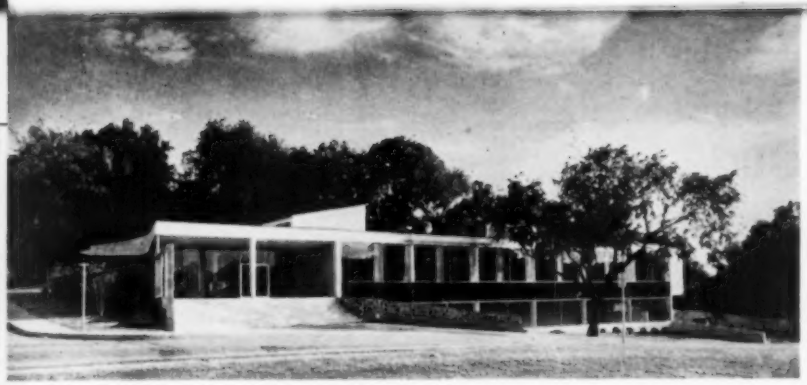
The effect of various mounting systems on acoustical efficiency can be obtained from each manufacturer or from the Acoustical Materials Association. If a suspended ceiling is not required, it is usually more economical to install acoustical tiles directly against the ceiling surface. If suspension is desired, the architect can take advantage of the additional 5 percent in acoustical efficiency contributed by the air space.

Acoustical tiles that are suitable for proper maintenance should always be considered. Materials that contain holes are usually the easiest to maintain over a period of years; all types of perforated tile (including perforated metal with baked-enamel finish) may be repainted repeatedly without affecting their acoustical efficiency. Where severe maintenance problems are anticipated, the situation should be discussed with the manufacturers of the respective products. Air-conditioning systems with inadequate filtering systems tend to increase acoustical ceiling maintenance problems; rooms where considerable smoking takes place must be cleaned and repainted more frequently than other types.

Acoustical tile reduces sound intensity in a room by the absorption of reflected noises. Since the ceiling constitutes the greatest reflective surface of most rooms, it is conventional to place the acoustical materials there and thus cover the greatest amount of what otherwise would be reflective areas. In small rooms containing mechanical equipment, it is frequently necessary to treat not only the ceiling but also the side-wall areas; this condition exists because the ceiling may frequently constitute only a small portion of the entire room surface and also because the noise intensity is so high. The proper amount of acoustical materials required for commercial buildings can be computed by assuming the maximum level of noise that will be caused by both people and equipment at specific locations. Changing conditions of occupancy must also be contemplated for these spaces. Careful acoustical analyses, however, are required for auditoriums, music rooms, and other places of public assembly with a fixed number of seats and specific operating conditions. An architect who has not gained sufficient experience to be his own consultant in sound-conditioning problems, must rely upon an acoustical engineer or competent acoustical consultant.

jaycee headquarters

Rare in this country is architecture that comes into being as a result of a national design competition. The headquarters building for the U. S. Junior Chamber of Commerce in Tulsa, Oklahoma, is not only one such instance, but encouraging proof that this approach can produce progressive work. Architects for the building were selected in a competition conducted in 1949 by P/A, with Jedd Stow Reisner as Professional Advisor, and Servel, Inc. and General Portland Cement Company as sponsors. The competition was limited to those between the ages of 21 and 35. Jury for the selection of the winning design (rendering, left) were: Pietro Belluschi; Karl Fred Kamrath; Hugh Stubbins; J. Robert F. Swanson, and Robert Law Weed. Photos: Hawks-Terrell, Inc.



jaycee headquarters

Location	Tulsa, Oklahoma
Competition Design Team	J. Edward Luders, Hideo Sasaki, James V. Edsall
Building Architects	J. Edward Luders and Harry A. Morris
Associated Architect	Donald H. Honn
Consultant Architect	Joseph H. Saunders
Landscape Architect	Hideo Sasaki
Furnishings Consultants	Honn-Nordling
Structural Engineer	J. W. Johnson
Electrical Engineer	D. T. Mason
Mechanical Engineer	P. G. Dunbar
General Contractor	H. R. Lohmann, Company

The program called for a fireproof, air-conditioned building to serve as the national headquarters for the U. S. Junior Chamber of Commerce and also as a memorial to World War II Jaycee heroes. Major requirements were a memorial lobby; offices for the president and administrative staff; offices for the compiling, editing, and distribution of the organization's voluminous printed matter; business offices; file and storage rooms; work space for the efficient handling of purchases and supplies; receiving, addressing, and mailing rooms.

The site is a rectangular corner lot, with a depth of 140 feet and a 200-foot frontage (to the north) overlooking a park and the city skyline. Fine trees on the south and west, with an irregular slope from southeast to northwest.

The two-level plan solution consists of an interior core of storage, utility, and toilet rooms, with the perimeter allocated to offices and work spaces. On the upper level, the memorial lobby occupies the entire east end of the building, with the main entrance on the north and doors out to a landscaped terrace at the rear. At some later date, a penthouse floor with a series of lively free-form roofs will be added to house the president's office, a conference room, lounge, etc. The building is of reinforced-concrete construction with portions of exterior walls of brick, stone, or structural glass; a grout of Trinity White Cement surfaces all exposed concrete. Interior walls are either plaster, or prefabricated, flush-metal partitioning. Floors are surfaced with asphalt tile or terrazzo, and acoustic tile is used on ceilings. The fixed plate-glass window areas have spandrels of structural glass.

The building is year-round air conditioned with a system using equipment manufactured by Servel, Inc. Because of the large sealed window areas, and wide variations in solar load, a zoned system was adopted to provide accurate temperature control of individual areas. Five zones, located in different parts of the building, are operated as individual units and have their separate air-distribution systems. Thus, on an Indian Summer day in fall, if the sun's heat on the south wall is strong while it is cool on the north, the system serving the south zone can cool while the one serving the north zone heats, keeping the entire building within a one-half degree plus or minus variance.

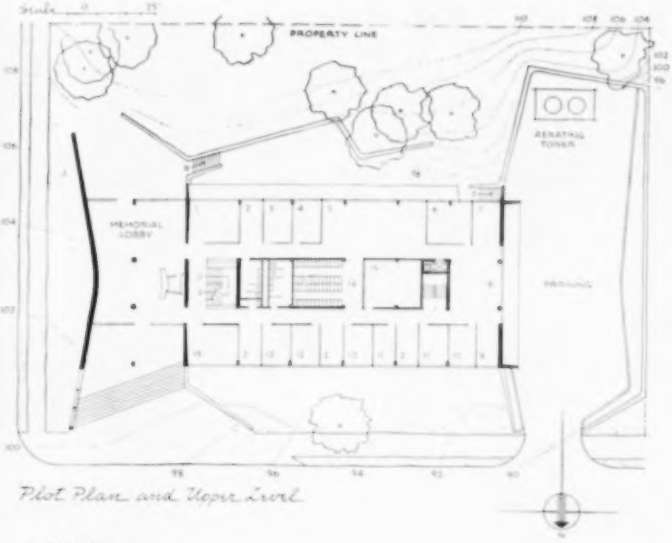
Control of natural lighting includes a deep structural sunshade on the south; a freestanding louver in the projecting frame on the west face, and the stone wall on the east. Both incandescent and fluorescent fixtures are used for artificial lighting.

We asked the members of the original design-competition jury and Jedd Reisner, the Professional Advisor, for their comments on the actual building. Excerpts:

Belluschi: "The plan as carried out seems to have the fine qualities of fitness, economy and efficiency for which the original design earned the prize . . . As a memorial, it is no better than expected, which may not be quite enough. As a finished piece of architecture, I cannot help being somewhat disappointed by its detailing and execution and by certain tricky features; nevertheless, it is a distinguished piece of architecture, which may contribute much to the country's general standards."

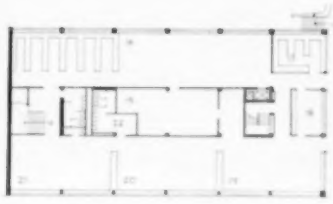
Kamrath: "A good simple plan solution, logical in arrangement. As I recall, much better than the original competition de-

The present roof penthouses will soon be joined with a temporary trellis enclosure, which later (when funds allow) will become part of a permanent rooftop executive suite. Exterior color is limited to black structural glass spandrels, white concrete, aluminum-sash members, and red-brown sandstone.



Plot Plan and Upper Level

1 PRESIDENT
2 SECRETARY
3 PURCHASING AGENT
4 CHIEF ACCOUNTANT
5 ACCOUNTING
6 MANAGING EDITOR
7 ASSISTANT EDITOR
8 EDITORIAL STAFF
9 STAFF ARTIST
10 EDITOR
11 FIELD SECRETARY
12 DEPARTMENT HEAD
13 EXEC. VICE PRESIDENT
14 CENTRAL FILES
15 AIR CONDITIONING
16 STORAGE
17 SHIPPING-RECEIVING
18 PRODUCTION CHIEF
19 MAILING ROOM
20 MAILING LIST ROOM
21 PRINTING
22 WOMENS LOUNGE



Lower Level

jaycee headquarters

sign." As to War Memorial quality—"questionable, but as good as one would expect from 'shoebox' architecture." Regarding the final design, as compared with the original, "I do not care for the architectural character of either."

Stubbins: "The plan seems orderly and efficient in the office and work section, but the memorial lobby and entrances are somewhat a disappointment . . . It is tricky and does not have the strength and simplicity that a design must have to be of lasting quality . . . However, it is interesting for me to see a building executed that was awarded on the basis of a national competition."

Weed: "I feel that the plan solution is a good one and the accommodation to the sloping site well handled. I think the lobby has the basis of a good memorial area but

In the memorial lobby (acrosspage, top) *the terrazzo floor is dark blue; the editorial suite* (acrosspage, bottom) *is protected from western sun by an exterior louver device. The main editorial office* (right, above) *is at the northwest corner of the upper floor. Panels of fluted glass separate stair hall* (right) *and corridor.*

lacks a certain follow-through in detail and furnishing . . . The 'nubs' at the eave line on the north elevation bother me. All in all, I think it is a swell little building even though it misses in detail and therefore loses some of the cleanness I anticipated."

Reisner: "My reaction is generally favorable; the building is in good scale, well arranged, and has a restrained monumentality . . . It is compactly arranged with a central service core that makes the most use of storage and mechanical space with least interference with office space." On the point of memorial character, "I feel the building does well by itself . . . It manages memorial atmosphere without shouting about it." Compared with the original competition design, "I would say that it is not as good in plan or elevation . . . but I am certain that the Jaycees have a building of which they may be proud and which will improve with time . . . I am proud to have been connected with this work."

has the basis of a good memorial area but

jaycee headquarters

construction

Foundation, frame, floors, roof: reinforced concrete: reinforcing steel—Sheffield Steel Corporation; cement—Ashgrove Cement Company, Dewey Portland Cement Company. **Wall surfacing:** exterior: exposed concrete surfaces grouted with Trinity white cement—General Portland Cement Company; stone—Carthage Marble Corporation; structural glass—Libbey-Owens-Ford Glass Company; brick, interior, including rest rooms, toilets: plaster—Certain-teed Products Corporation; ceramic tile—Cambridge Tile Manufacturing Company; asphalt tile—Flintkote Company, Tile-Tex Division. **Floor surfacing:** asphalt tile, terrazzo—Cambridge Tile Manufacturing Company. **Ceiling surfacing:** acoustical tile—Armstrong Cork Company. **Roof surfacing:** 20-year tar and gravel, membrane waterproofing—Allied Chemical & Dye Corporation, Barrett Division. **Insulation:** thermal: 2" glass fiber, semi-rigid material—Gustin-Bacon Manufacturing Company. **Roof drains:** cast iron drains—Josam Manufacturing Company. **Partitions:** 3" flush metal—Mills Company; flush metal toilet partitions—Sanymetal Products Company, Incorporated. **Windows:** plate and structural glass—Libbey-Owens-Ford Glass Company. **Doors:** hollow metal interior—World Steel Products Corperation; narrow-stile aluminum entrance—Kawneer Company. **Hardware:** push plates, pulls—Detroit Hardware Manufacturing Company, Murray R. Womble Company; roller latches—Glynn-Johnson Corp.; locksets—Sargent & Company; hydraulic door closers—LCN Closers, Inc.; hinges—The Stanley Works.

equipment

Lighting fixtures: flush-mounted, square and round incandescent units in office and lobby ceiling areas—Kirlin Company. **Electric distribution:** service entrance switch, panelboards, multibreaker—Frank Adam Electric Company; floor duct—Walker Duct Company; cable, conduit—Triangle Conduit & Cable Company; wiring devices—General Electric Company. **Plumbing and sanitation:** syphon-jet water closets, tubs and lavatories, water heater, concealed flush valves—Crane Company; hard-rubber toilet seats—C. F. Church Manufacturing Company. **Heating:** forced-air, steam-operated unit—Servel, Incorporated; boiler—American Radiator & Standard Sanitary Corporation; controls — Minneapolis-Honeywell Regulator Company. **Furnishings:** walnut desks, beige Micarta tops, and walnut storage units, bittersweet fronts; benches, chairs, etc—Herman Miller Furniture Co.; executive chairs—Knoll Associates, Inc.; lobby drapery—Ruth Adler.

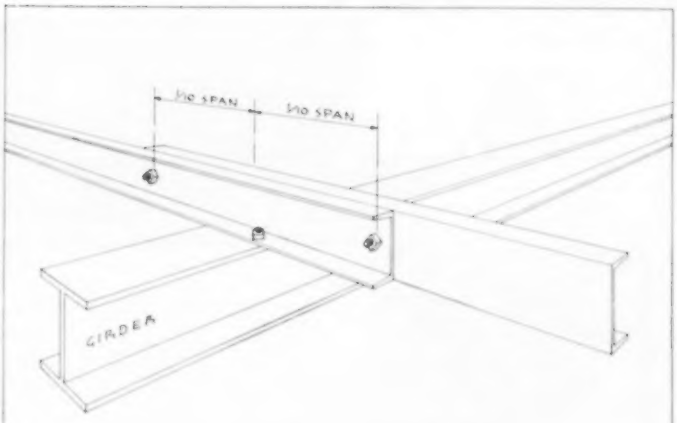
In the northeast corner of the lower level is the efficient mailing and printing room (top). Private offices (two lower photos) line the north wall of the upper floor. Color schemes upstairs are built around yellow, silver-gray, blue, and white; downstairs, Swedish yellow and blue are used. Washrooms are painted in varying schemes, including apple green, tangerine-pumpkin, and blue-gray.

steel design economy

by Julian Smariga*

Steel conservation practices are a must factor in building design today. The high standards of design currently used make fairly efficient application of structural material, therefore a great reduction in the total weight of steel-framed buildings is not generally possible. However, an appreciable saving in some elements of framing can be achieved by certain design and construction techniques which have proven economically feasible.

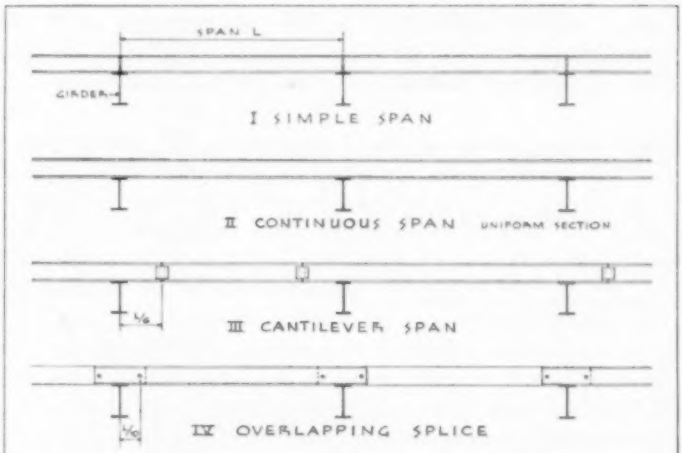
Continuity of framing presents one of the greatest opportunities for using steel effectively. Complete continuity is readily achieved by welding. This method is widely used in those areas of the country blessed with progressive building teams. A modified form of continuity (described as cantilever steel construction) is economically feasible without welding, as demonstrated in several examples.[1] Another way of developing controlled continuity without welding, known as the overlapping-splice method, is illustrated (*Figure 1*). This method achieves substantial weight savings without a corresponding increase in fabrication or erection costs, and has been used in the roof construction of several building types.[2]



DETAIL OF OVERLAPPING SPLICE FIGURE 1

overlapping-splice construction

The web splice connection of the overlapping-splice method of construction (*Figure 1 shows a typical detail*) should be designed for a shear force of 0.425 wL. For average conditions, this connection will generally require only one or two bolts; for unusual spans and heavier loading conditions, rivet bolts may be used to reduce the number of connecting units required. The proportions of the overlap indicated are designed for uniform loading conditions and, therefore, are generally applicable only for roof construction. Isolated conditions of concentrated loading could be taken care of by strengthening the indi-

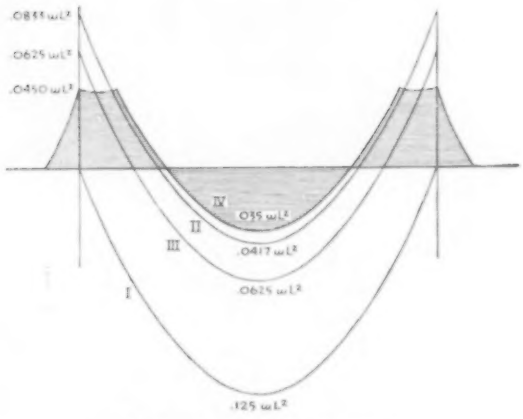


TYPES OF FRAMING FIGURE 2

* Structural Engineer, Division of Hospital Facilities, Public Health Service.

[1] "Construction Techniques That Conserve Steel," by Ronald Allwork. November 1951 P/A.

[2] "Welded Rigid Frame Structures," by A. Amirikian. October 1940 The Welding Journal.



MOMENT DIAGRAMS FIG. 3

Type of framing	Design moment	Comparative section required*	Relative weight factor excluding connections	Maximum deflection	Relative deflection factor
I	.1250 wL^2	10 WF 21	1.00	$\frac{5\ wL^4}{384\ EI}$	1.00
II	.0833 wL^2	8 WF 17	.81	$\frac{wL^4}{384\ EI}$	.38
III	.0625 wL^2	10 [15.3	.73	$\frac{wL^4}{192\ EI}$	.64
IV	.0450 wL^2	8 [11.5	.65	$\frac{wL^4}{542\ EI}$	.47

* Assume that the net section modulus at the critical section is reduced by having one hole punched in each flange.

vidual members involved. It should be noted that fabrication and erection procedures are simplified by the elimination of splice plates and angles.

comparative study

Several commonly used design schemes were selected for comparative study (*Figure 2*). The stress pattern for uniform loading in each scheme is shown (*Figure 3*), where the relative stress economy is clearly evident. It is believed that the overlapping-splice detail provides the best possible balance in positive and negative moments for rolled structural-steel members.

A comparative study of the performance of each design scheme was made and the results tabulated (*left*). An examination of the sections, weights, and deflections will show that the theoretical advantage of design moments for the overlapping splice is reflected in an appreciable weight saving without penalizing the deflection characteristics.

The technique of overlapping is especially suited to purlin or girt sections supporting a surface subjected principally to uniformly distributed loads, such as roof or large wall areas. For main frames and supporting girders, individual design and proportioning is desirable to distribute the required material in an efficient manner.

The comparative summary does not include fabricated joist members, since considerations other than weight economy may enter into the decision to use steel joist construction. However, in comparing the relative weights of steel-joist construction verses overlapping-splice construction, the span length appears to be the controlling feature. It seems that for spans up to about 22 feet, rolled steel with an overlapping-splice detail is more economical in weight of material than bar joists, while for spans over 22 feet long, bar-joist construction will be lighter.

Cleveland, Ohio

Phoenix, Arizona

Winslow, Arizona

Providence, Rhode Island

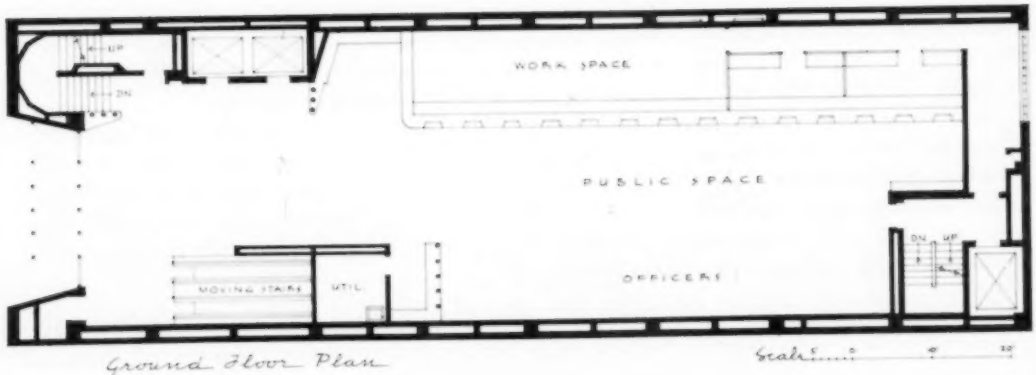
bank planning

Where formerly temples of finance catered only to the chosen few with large sums of money, today banks all over the country conduct lively campaigns to lure anyone with a dollar unspent. Indicative of this trend are such relatively new services as Christmas Clubs, and the "special" checking accounts with no minimum balance required. One finds, too, that big-city banks are building more and more branches in the suburbs, quite literally bringing banking services "close to home." With the greatly increased patronage that this implies, the approach to bank design has altered radically.

In planning to simplify and expedite the new customers' use of the bank's facilities, tellers' windows are almost invariably grouped together so that there is a minimum of confusion for the customers. The formidable cages and grilles have all but vanished, so that customer and banker now meet on common ground. Even the creature comfort of those who bank has become a matter of concern, and more and more banks—all those shown in this study, for example—have summer cooling systems as well as winter heating.

What of the architectural form that has been developed to express these broadened functions? More and more banks have opened their façades, as well as their doors, in a welcoming gesture. Inside, in place of the impressiveness of a palatial hall or the aura of a religious sanctuary, a light and airy room is found, one that is pleasant rather than challenging to enter. And with construction of branch banks in residential areas, the scale of design tends to become more intimate—less intimidating.

Cleveland, Ohio



Ground Floor Plan

Scale: 0 8 32

The bank occupies the basement, ground, and second floors of this new six-level structure. Admittedly less efficient than a layout on a single floor, the three-level solution was dictated by the limits of the building site—41 feet wide and 130 feet deep. The safe-deposit department—vaults, lobby, coupon booths, and conference room—is located in the basement. On the ground floor is the savings department (where most customers make but a single transaction; hence, turnover is fast), facilities for opening accounts, paying loans and utility bills, and a travel service. The second floor, practically identical with the ground floor, except for an officers' platform at front of the floor, is the commercial banking floor, including checking and loan facilities, offices, and conference rooms. The building is served by two passenger elevators at the front and one combination passenger-freight elevator at the rear, in addition to electric stairways joining the ground and second floors.

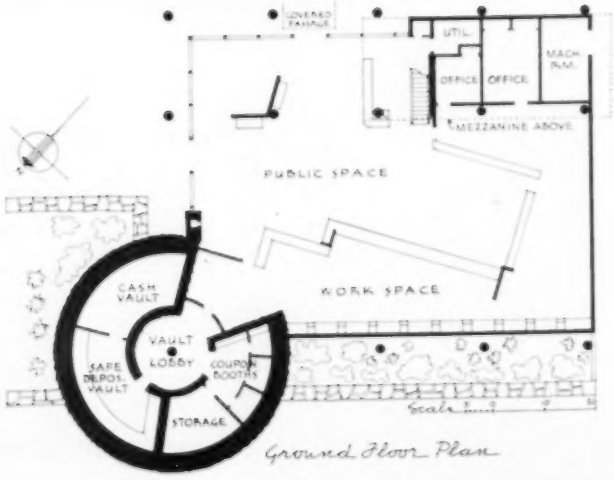
Because of a familiar Cleveland soil condition—water-bearing sand from —5 feet to —221 feet—the foundations were designed with support on floating footing pads. Frame is structural steel, with brick curtain walls and a cellular-steel floor system, which also is used for electrical distribution. The front of the building is surfaced with a one-inch veneer of Swedish "Imperial Red" polished granite, with frames, lettering, and spandrel areas in stainless steel. Interior walls are surfaced with oak paneling, marble, or painted plaster.

Floors in public spaces are dark-gray-green terrazzo, with aluminum screeds; asphalt tile in offices. Complete air conditioning includes cleaning, heating, cooling, humidifying, and dehumidifying, with individual controls for each floor; all glazing is heat-absorbing plate glass.

Architects	Conrad, Hays, Simpson & Ruth
Designed by	J. Byers Hays
Structural Engineer	John F. Fierbaugh
Mechanical Engineer	Vincent Eaton
General Contractor	Hunkin-Conkey Construction Company

On both the second floor (top) and ground floor (left, and immediately above) lighting is handled with a combination of fluorescent and incandescent lamps with over-all ceiling light consisting of fluorescent tubes spaced 2 feet on centers, above an aluminum eggcrate. This, plus recessed spotlights above officers' desks and tellers' counters, produces 50 foot-candles at desk-top heights. (See page 139 for SELECTED DETAIL, *teller's counter.)*

Photos: R. Marvin Wilson



Phoenix, Arizona

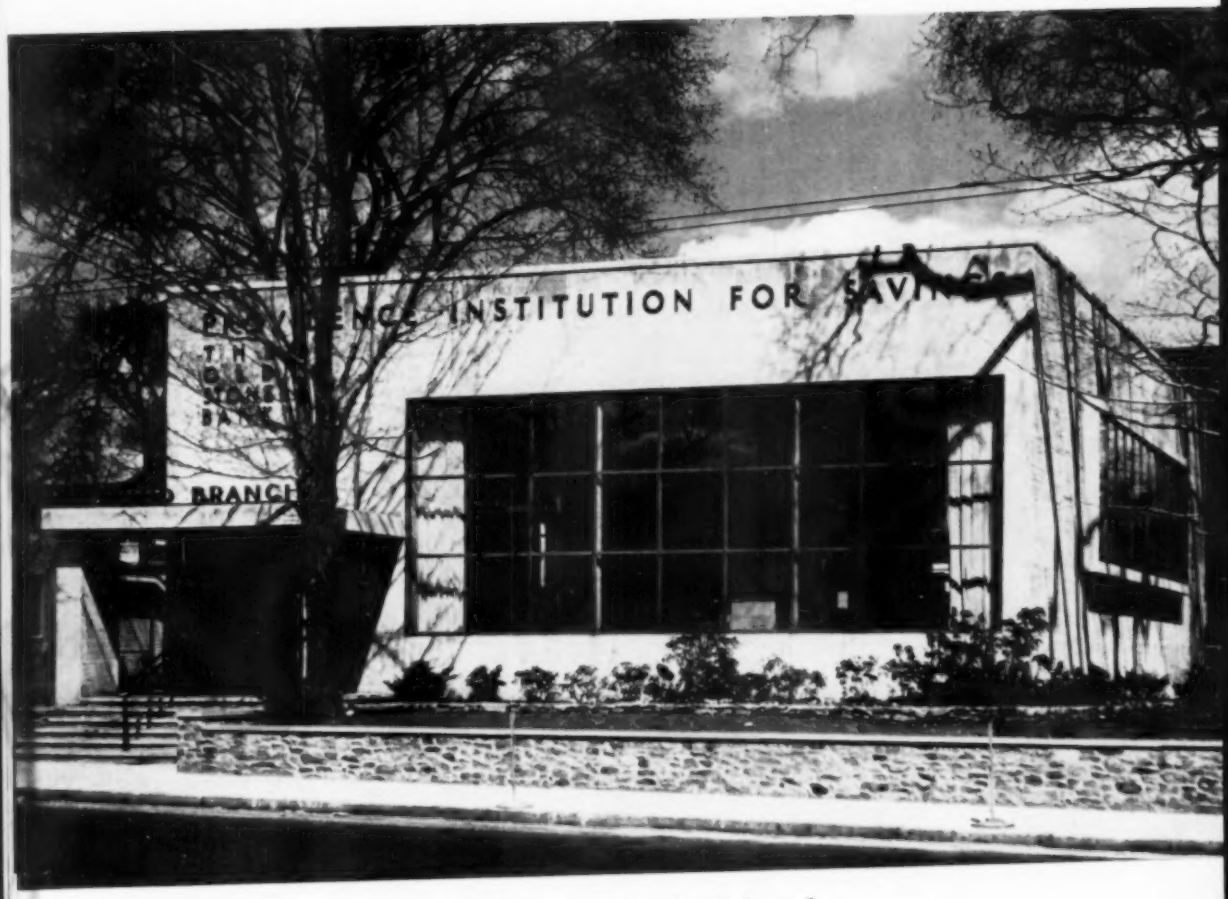
A highly original expression of bank function is perhaps the highlight of this remarkable bank which, according to the architects, was designed "to produce a building with a character of financial security and informal reception for men accustomed to big thinking and rugged outdoor activity." Built in the heart of a cattle-raising area, it makes a bold design statement of the two basic functions of a bank—the safekeeping of money and records, and the conduct of business transactions.

The reinforced-concrete circular vault, with a rugged veneer of native stone, projects through the north corner of the many-windowed, high-ceilinged banking room, the openness of which provides a sweeping panorama of herds, desert, and mountains. Random-laid stone is used for flooring, while counters and other wood furnishings are rough-sawn wood. Brand marks are used for wall decoration. The ceiling is finished with acoustic plaster. To shield the bank from the intense afternoon sun, louvers are used outside the glass of the northwest wall. A small mezzanine at the southeast corner accommodates offices, a conference room, and rest rooms.

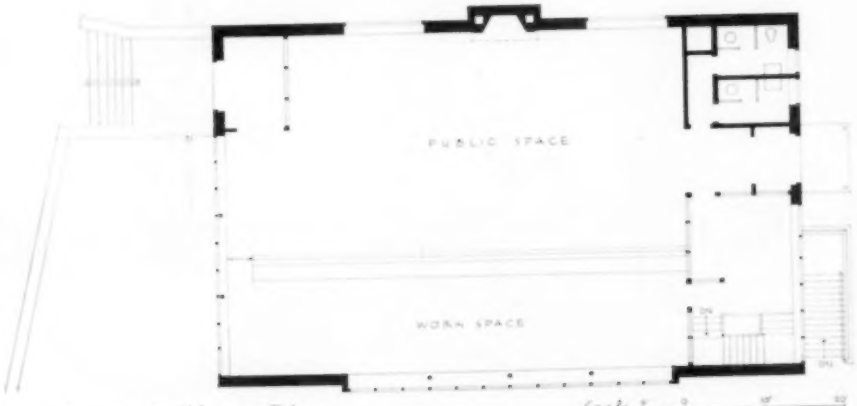
Built on reinforced-concrete foundations, a modular steel and concrete framing system is employed that, in conjunction with exterior walls of demountable crenellated steel decking, allows for future expansion with minimum basic change. The concrete roof, supported on bar joists, is surfaced with built-up gravel. Plate-glass windows are fixed in aluminum frames. The completely air-conditioned building has a forced-air heating system serviced from a gas-fired furnace.

Architects & Engineers	Pereira & Luckman
General Contractor	Perry Brignell Construction Company

The steps leading up to the mezzanine (right) *are of solid Douglas fir. An eggcrate ceiling lights the circular masonry vault* (right, below). *The ceiling of the banking room is painted green; otherwise, color derives from the subtle tones of natural materials.* Photos: Julius Shulman



Providence, Rhode Island



Ground Floor Plan

Architects	Office of Harkness & Geddes*
Heating Engineer	Christopher D. Potter
Electrical Engineer	Thompson Engineering Company
Landscaping	James D. Graham
General Contractor	Frank N. Gustafson & Sons, Inc.

* *Albert Harkness; Peter Geddes; Donald S. Reed; Randolph E. Anderson*

A continuing trend is establishment of branch banks in residential districts, away from downtown confusion. This particular branch was built on the site of the oldest house in the neighborhood. Hence, the carefully preserved fine trees and adoption of a design scale that does no offense to a residential environment. Carrying even further this bow to the domestic surround is the open fireplace that is kept burning through the winter.

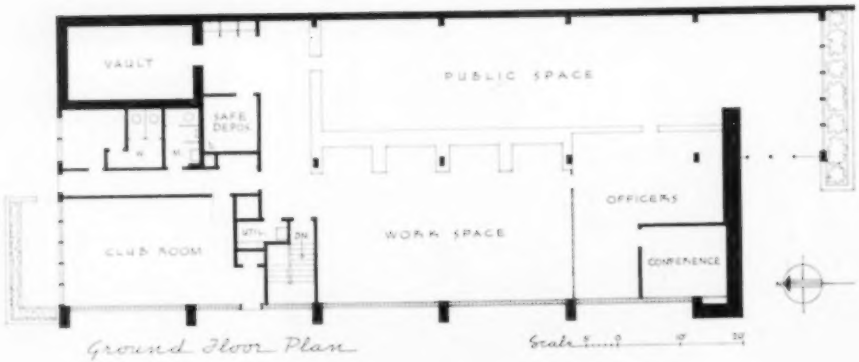
Framed with concrete-filled steel columns and steel lintels, the bank has a floor of concrete-joist construction with removable pan forms; embedded in this floor is wrought-iron piping for a forced hot-water radiant-heating system; the floor surface is terrazzo. Exterior walls of 4-inch shot-sawed limestone are backed by 8-inch brick walls. The roof uses long-span open-rib steel joists with precast-concrete slabs. The hung ceiling has a float finish of vermiculite plaster.

The radiant-heating system is supplemented by cast-iron radiators in vestibules, toilets, and basement lounge rooms, the entire system being served by on oil-fired boiler. There is also a summer air-conditioning system. Sash are bronze or steel, with double insulating glazing.

For ease of snow removal, the sidewalks, entrance steps, and platform are equipped with radiant-heating coils. The large windows provide excellent daylighting for the bank, with summer sun tempered by tree foliage and light glass curtains. Artificial lighting in the banking area is provided by 6-foot square fluorescent ceiling panels, with metal-eggcrate grilles; teller counters have individual, 24-inch fluorescent lamps.

Photos: Laurence E. Tilley

Winslow, Arizona



Ground Floor Plan

Located in northern Arizona, in a town at the edge of the Navajo-Hopi Indian Reservation, this branch bank serves both the town's year-round residents and a lively tourist business. While the basic consideration was to design a thoroughly modern banking establishment, the client specifically requested that the building in some manner echo the environment. This requirement was met in such choices as use of native sandstone in color range from light buff to dark earth-red, and familiar Indian motifs for decorative emphasis.

The architect wished to have the finished design express the structure. Hence the exposed rigid concrete frames at 20-foot intervals, and the lightweight precast concrete plank for roof decking. The entire east wall of the public space is surfaced with turquoise-blue tile with a textured face. Against this wall are mounted four half-relief Hopi dancer groups symbolizing the four seasons. The work of Phillips Sanderson, these sculptures are in polychromed Spanish cedar. The club room, with separate street entrance, is used for meetings of civic groups. In the basement are storage rooms, mechanical equipment, and employes' lounge.

The floor of the public space is terrazzo; elsewhere, flooring is rubber tile. Low ceilings are surfaced with acoustic tile. Directional glass block is used on the west wall of the work space, with heat-absorbing glass in the clerestory above. Due to the extension of the canopy above the counter, direct sunlight strikes the east wall above head height. Heating is a combination of copper radiant floor coils with tempered air delivered through duct space in the canopy, that also distributes cool air from air washers in summer.

Photos: Julius Shulman

Architects & Engineers	Edward L. Varney-Associates
General Contractor	Daum-Donaldson Construction Company

courthouse

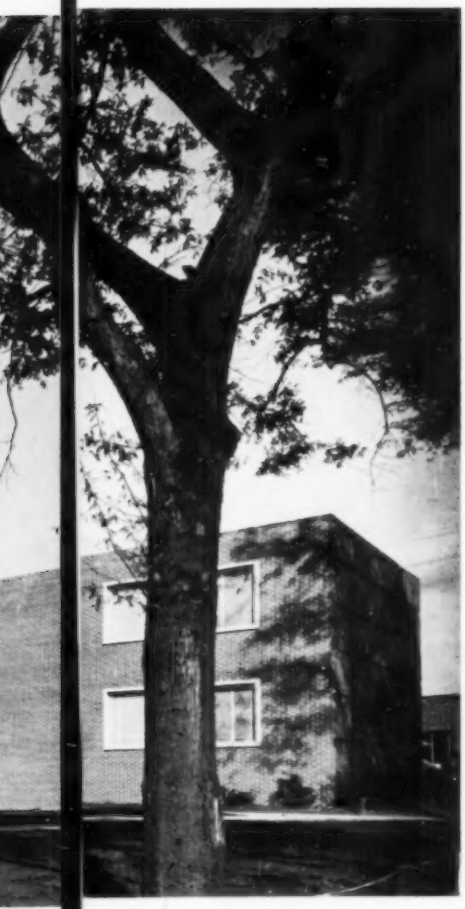
Location	Cordele, Georgia
Architect	Bernard A. Webb, Jr.
Engineers	Cherokee Engineering Company
Heating and Air Conditioning	Harry Torch
General Contractor	S. J. Curry Company

The architect had a most remarkable client, in the Building Committee for the County Commissioners. Not only did the committee expressly state it did *not* want a monument to itself (one special request was that the building *not* have a tower and a clock), but the architect was asked to write his own program, so long as the result would be a courthouse and up-to-date office building, "with emphasis on economy and the housing of the County's working needs so that the functions of a modern and progressive community would be carried on efficiently."

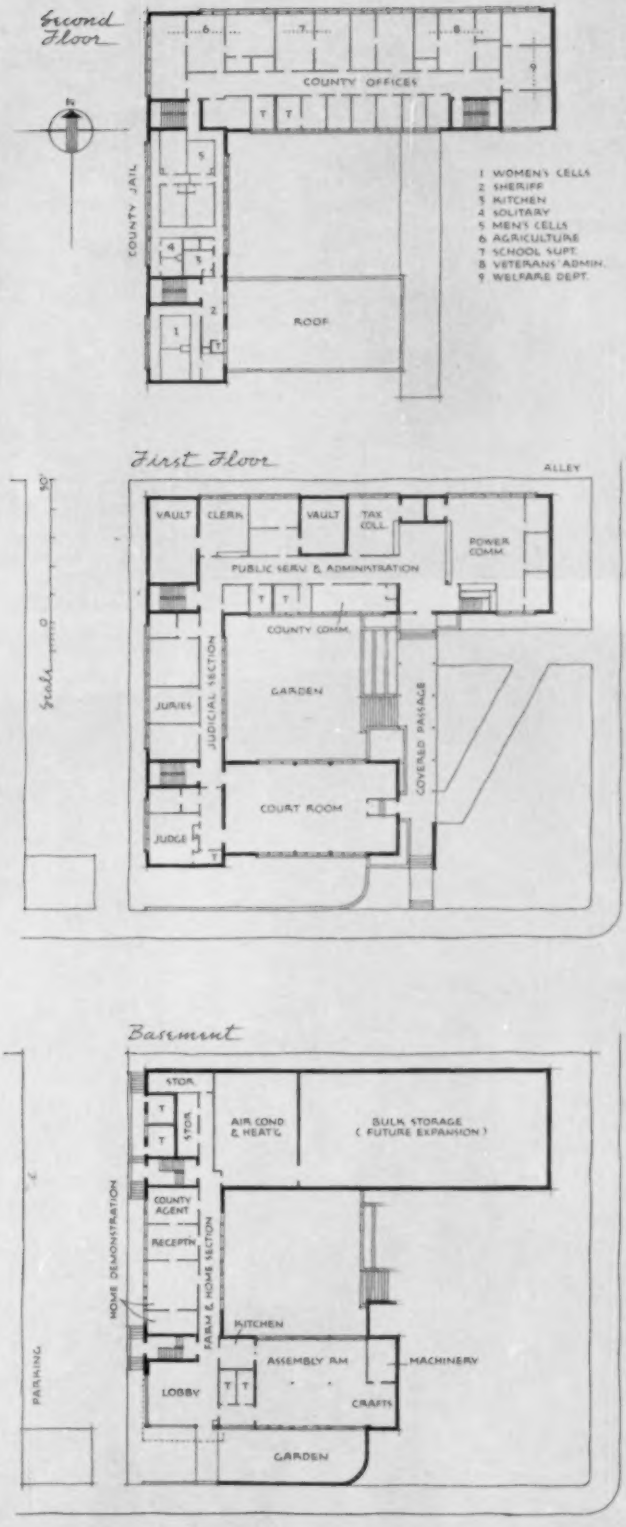
Throwing out all preconceived ideas of government-building design, the architect conducted exhaustive interviews with all the personnel who would use the building —from judges to janitors—to determine actual working needs. As a result, the new building contains 31,514 square feet of space, whereas the old quarters it replaced had a wasteful 60,000.

The site has a slope of 10 feet from front to back, a situation that was capitalized to provide a secondary entrance for the Home Demonstration offices at the lower level. To avoid a ground-water condition near the center of the site, the plan was developed in a U-shape.

Since Crisp County owns its own power supply, it was decided to employ a heat-pump installation for complete summer-and-winter air conditioning. Although



higher in initial cost than more conventional systems, it proved actually to be an economy, since fixed glass was used throughout, boiler-room space was saved, and no smoke stack was needed. It also allowed use of thinner floor-slab construction and resulted in a per diem heat-cost saving of $5 compared to coal ($10 to $12 compared to butane or propane gas). Not the least remarkable by-product of this installation was a fully air-conditioned jail!

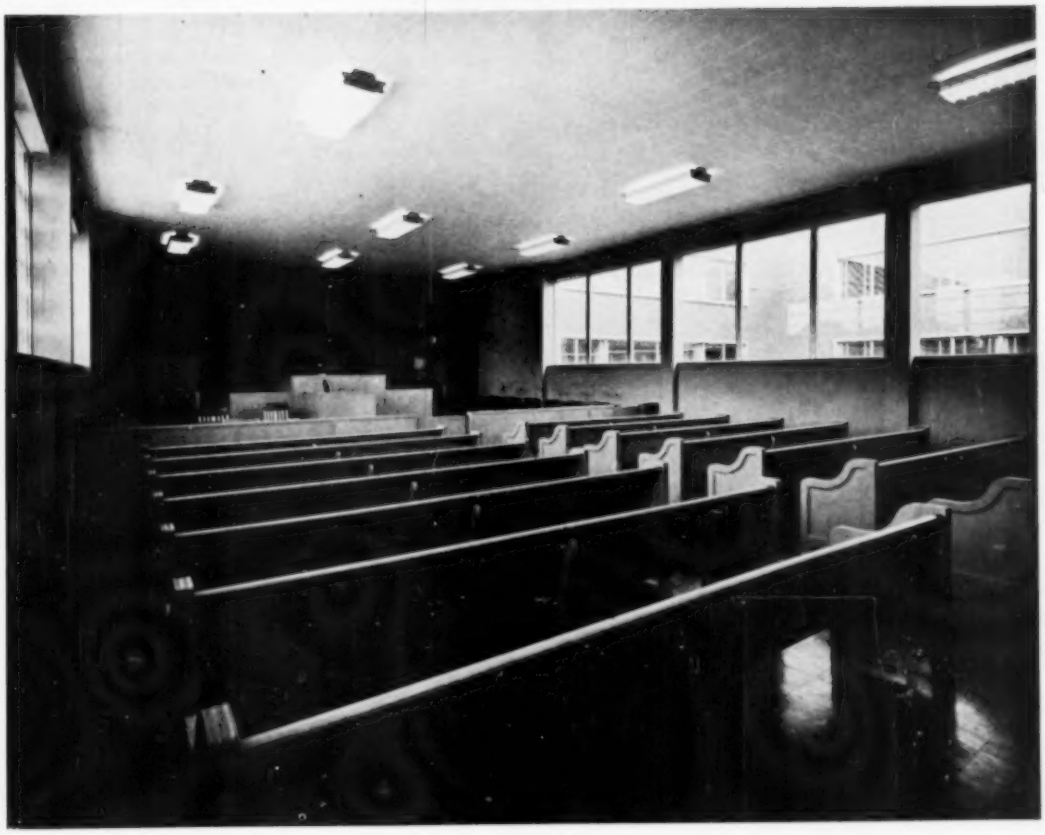


courthouse

A bench-lined covered passage leads directly to the public service offices at one end (left) and to the courtroom (bottom, both pages) at the other. The assembly-dining room (top, acrosspage) occurs at the lower level, directly under the courtroom. In the main, the building is of reinforced concrete construction; in the assembly-dining room area, lally columns were used to minimize obstruction, while junior beams span the courtroom ceiling. Exterior walls are of red brick, with white brick and cast-stone trim.

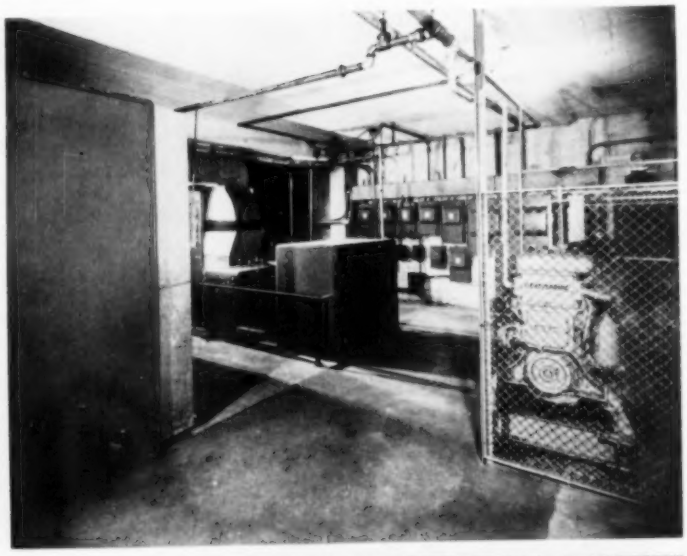
Photos: Gabriel Benzur

Mullions for the fixed plate glazing are aluminum. Interior partitions (in general) are 2" solid plaster on metal lath—"space saving and easily movable." Flooring is asphalt tile, and ceilings are finished with acoustic tile. Ceiling-mounted fluorescent fixtures are supplemented by both incandescent units and tubular lamps in coves.



Since the Power Commission is a prime producer of electric power, and as fairly high-temperature well-water is available, a heat-pump air-conditioning system was selected. The conditioning system was zoned geographically—northeast, south, and west—as the heat gain from human occupancy in those areas was fairly constant and only the solar load factor was variable. A fourth zone, comprising the courtroom-assembly room which would be subject to wide occupancy variations, was zoned separately.

Equipment includes: four air-distribution units (one for each zone), equipped with both hot-water heating and chilled-water cooling coils; two 40-ton reciprocating-type condensing units; a dry expansion chiller; and two circulating pumps—one located in the chiller circuit, the other in the condensing circuit. A pneumatic control system was selected, for easy adaptability for heat-pump operation.



The air-conditioned jail on the top floor (left) *has fixed, obscure glass in aluminum frames. The heat-pump year-round air-conditioning equipment is housed in a small room in the basement* (left, above).

what the architect should know about the heat pump

by Robert H. Emerick*

Every one of us who operates an electric refrigerator is, inescapably, operating a heat pump at the same time.

Here is how it works: (a) the liquid refrigerant, usually Freon 12, evaporates in the refrigerator coils, obtaining the heat needed for evaporation from the nearby foodstuffs; (b) the gas formed by this evaporation is withdrawn from the coils by the suction of a motor-driven compressor; (c) the gas is compressed to condensing temperature, usually around 110 F, the compressor "pumping up" the heat content as necessary to produce the condensing temperature; (d) in the condenser, usually a coil on the exterior back panel of the refrigerator where the room air can reach it, the gas yields its heat to the room air and, resuming its original liquid form, is ready to repeat the cycle. In short, if we had enough hot gas we could heat the whole house simply by passing the room air over the condenser.

The commercial heat pump, as we know it today, does what our refrigerator does, on a much larger scale—it produces enough hot gas. Instead of our watch-charm size refrigerator compressor with its fractional horsepower motor, we have multi-cylinder jobs driven by motors of any practical size. For home installation, the standard cabinet package is being built in 3 hp, 5 hp, 7½ hp, 10 hp, and 15 hp units. Larger cabinets for commercial applications also are available.

theory of economy

The economy of the heat pump is based on our ability to get a certain amount of heat for nothing, to abstract heat from the air, earth or water around us. We do this by permitting liquid refrigerant to evaporate in the air, earth, or water, exactly as we permit it to evaporate in our domestic refrigerators. The value of this heat harvest is illustrated by the following example:

Suppose we take heat from the outdoor air when the thermometer stands at 30 F. Then, to obtain a good rapid heat exchange, our compressor must produce a suction temperature in the evaporating coil of 20 F. At 20 F, the Freon gas carries a heat load, saturated, of 80.49 Btu per pound. When pumped up to the condensing temperature of 110 F, the gas heat load has grown to 89.43 Btu per pound, the difference having been added by the compressor.

In the condenser the gas reverts to liquid refrigerant, this liquid still holding heat to the extent of 33.65 Btu per pound, while the heat given up, amounting to 89.43—33.65, or 55.78 Btu per pound, is what we use for house heating.

Since this liquid then goes to the outdoor evaporator, our heat harvest from the air is 80.49—33.65 = 46.84 Btu per pound, or (46.84/55.78) = 80.37 percent approximately of all the heat we use for heating.

Any scheme that appears to produce 80 percent of our heating needs, free, is of universal interest but, unfortunately, the theory is subject to certain practical factors which shrink the apparent advantages. First of these factors is the problem of selecting a suitable heat source for our theoretically free supply. Here are the pros and cons we meet:

air as a source of heat

Commercial designs of heat pumps, using air as the source of heat, generally deliver the air to the evaporator coil by means of a duct which begins at a louvered opening in the outside wall. After giving up its heat to the refrigerant in the evaporator coil, the cooled air is discharged outdoors through a companion duct. Obviously, the architect is faced with problems of louver location, complicated by the necessity for discharging the cooler air at a level lower than the intake, or at a point safely distant to avoid recirculation.

Next, an air-source design almost inevitably must be augmented by supplemental heating of some sort during severe weather, the usual practice being to provide resistance heaters in the warm-air duct. Resistance heaters in large numbers are not viewed happily by the power company, since they impose heavy demands on the system for comparatively short periods. Their use is not viewed happily by their owners, either, as the cost of operation is considerable.

Clients generally are puzzled by these limitations of the air-source design, which result from two characteristics of the refrigerating system. First, the compressors operate at a constant speed, thereby definitely fixing the volumetric capacity of the machine; and second, the *volume* of the refrigerant gas fluctuates widely as the suction temperature fluctuates. Because of these characteristics, a heat pump that does a satisfactory job on air at 30 F, becomes totally inadequate at 0 F.

For example, with a 20 F suction temperature, common for a 30 F atmosphere, one pound of Freon 12 gas occupies 1.121 cubic feet, and reaches the compressor with a heat load of 80.49 Btu. At 0 F, our suction temperature becomes —10 F, and the one pound of Freon 12 expands into a volume of 2.003 cubic feet, while reducing its heat load to 77.05 Btu.

The comparative effects of these two conditions show up most startlingly in figures, like those shown (*Table I*).

Obviously, those 20 Btu per cubic foot which never reach the compressor on a zero winter day must be made up somehow

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Table I

A. Suction temperature of 20 F (ambient 30 F)	
Heat in gas going to compressor, Btu/lb	80.49
Heat in liquid from condenser, 110 F, Btu/lb	33.65
Heat picked up in evaporator, Btu/lb	46.84
Gas volume at 20 F, cu ft/lb	1.121
Btu/cu ft, picked up, 46.84/1.121 =	41.78
B. Suction temperature of —10 F (ambient O F)	
Heat in gas going to compressor, Btu/lb	77.05
Heat in liquid from condenser, 110 F, Btu/lb	33.65
Heat picked up in evaporator, Btu/lb	43.40
Gas volume at —10 F, cu ft/lb	2.003
Btu/cu ft, picked up, 43.40/2.003 =	21.67

Table II

Heat in gas going to compressor, Btu/lb	83.25
Heat in liquid from condenser, Btu/lb (110 F)	33.65
Heat picked up in evaporator, Btu/lb	49.60
Gas volume at 45 F, cu ft/lb	0.730
Btu/cu ft picked up, 49.60/0.730	67.94

Table III

Temp. of heat source	Temp. of suction	Heat per cu ft, Btu
55 F	45 F	67.94
30 F	20 F	41.78
0 F	—10 F	21.67

—and that is when the resistance heaters are called into action.

We might note that faster compressor operation or additional volumetric capacity, while possible, adds so much to the cost that resistance heaters are much the lesser evil.

Falling temperatures not only affect our compressor volumes unfavorably, they introduce certain dangerous potentials insofar as loading the outside air fan is concerned. For example, if we pass 2000 cfm over the evaporator coil, the total weight of this air at 20 F is approximately 165 pounds. At 0 F, the weight grows to 174 pounds, not a serious increase unless, at the same time, the coil becomes badly frosted and thereby injects a strong resistance against the fan. If the fan is of the nonoverloading design, no damage is done, but the heat harvest from the frosted coil is an exceedingly sparse one, and comfort in the house shrinks.

This frosting of the coil is one of the major discouraging features of the air design. Some form of periodic and efficient defrosting is a must.

Here is the balance sheet for air:

For—

1. Air is all around us, available for the using.
2. The system design is simple.
3. The initial investment is less than for any other source of heat.
4. As a heat reservoir, the atmosphere is practically inexhaustible.

Against—

1. Defrosting can be inconvenient.
2. Sizing of the equipment is a critical problem. We must decide at what temperature economic requirements bring on the supplementary heating equipment.
3. An unsupported air evaporator should not be considered in climates where the temperature goes below 20 F.

earth as a source of heat

Unless our building enjoys a fairly large plot of ground, the installation of ground coils can pose a difficult problem. For instance, the ground coil provided for a 7½-ton heat pump in a home near Philadelphia, used up 2218 feet of 1½" iron pipe, laid horizontally in 1109 lineal feet of trench. A similar arrangement for a 5-ton installation employed 1390 feet of pipe in 695 feet of trench.

The situation is easier with vertical pipes driven into the ground, a practice seen in a number of cases, but obviously we will find vertical coils impractical in rocky earth.

In any event, before deciding on a ground coil, we should obtain data on the earth's conductivity in the area of the projected installation. Unless tests are run, we may find our heat pump withdrawing heat from the coil faster than nature can replace it; the cure for such a condition is more coil, spread out to lessen the concentration of draw.

In general, moist earth shows greater heat conductivity than dry earth, but should the moisture freeze, our coil is insulated as effectively as an air evaporator is insulated by frost. From time to time in northern latitudes, injection of an antifreeze solution into the ground around the coil is suggested as a safety measure.

With ground coils, an auxiliary liquid is used, such as glycol, which circulates through the coil and meets the refrigerant in a heat exchanger where the transfer of ground heat to the refrigerant takes place. Pumping the ground coil liquid introduces another auxiliary into the heat pump design, but the

pump usually is small and inexpensive.

The balance sheet of the earth source looks like this:

For—

1. Ground temperatures remain fairly high below the frost line, even in winter. This condition is favorable to the heat pump operating economy.
2. The earth is generally convenient.

Against—

1. Installation of a ground coil can be expensive.
2. Locating the coils of separate systems in close proximity to each other, as in a city where ground area is limited, possibly may spread out the yield of heat so thinly that none of the systems will perform satisfactorily. Local ground conductivity is critical here.
3. When rocky ground is met, adequate coil bury may become impossible.
4. The coils are subject to the corrosion attacks commonly suffered by piping buried in the earth.

water as a heat source

In Myrtle Beach, South Carolina, a 5-ton heat pump, which harvests heat from a flowing supply of city water, reports average monthly water bills of $55. In Minnesota, a Rural Electrical Administration co-operative operates a 7½-ton system on well water at a cost of approximately $100 per month, maximum.

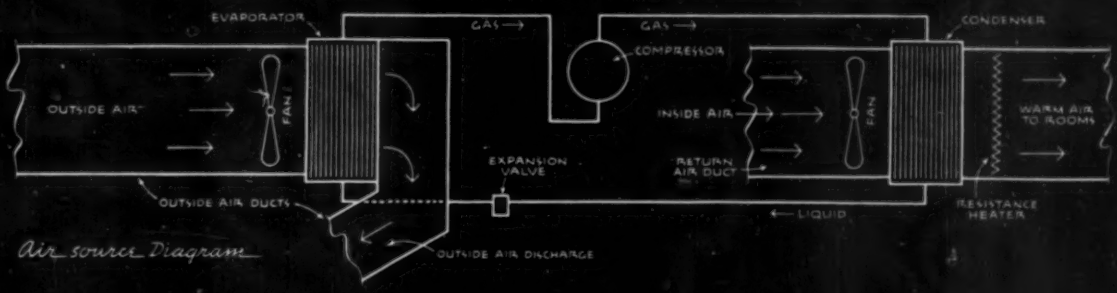
Water is not obtained free unless we are located on a lake, river, or ocean, and even then we must sink the refrigerant evaporator in the water or accept a cost for pumping.

Water has some highly desirable characteristics as a heat source. For instance, its temperature is never lower than 32 F, and nearly always is much higher. In Minnesota, with temperatures 35 degrees below zero, well water reaches the surface at 38 F to 40 F. In the southern states, 60 F is common. Even New England produces 50 F water.

The importance of a high temperature heat source becomes clear the moment we examine some figures. For example, with 55 F water and an appropriate 45 F suction temperature, the total heat of the gas entering the compressor is 83.25 Btu per pound, and its volume is 0.730. What the evaporator can do with this 55 F water, is shown (*Table II*).

Compare this with the heat content per cubic foot which reaches the compressor, when suction temperatures are lower (*Table III*).

This comparison illustrates an important characteristic of heat pump systems: the higher the temperature of the heat



Air source Diagram

Water and Earth heat source Diagram

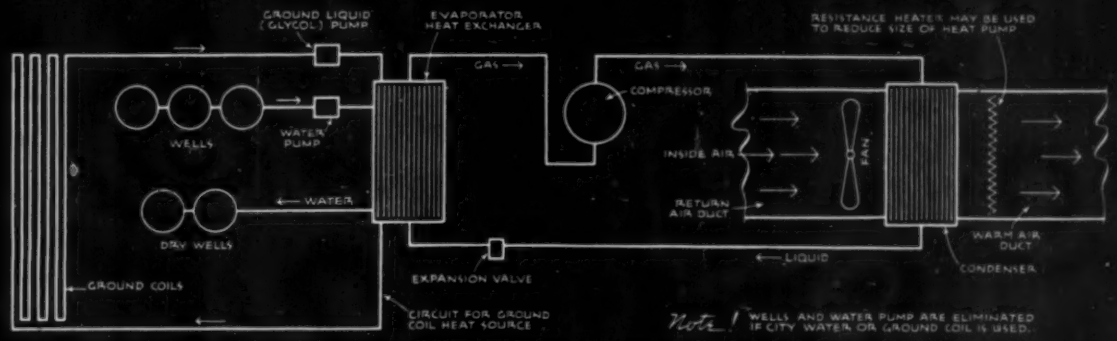


Table IV: Approx. Cabinet Dimensions, Air-Source Units

Standard size, horsepower	Over-all width, inches	Over-all depth, inches	Over-all height, inches	Weight pounds
3	62	48	74	1930
5	78	54	74	2890
7½	90	66	80	3880
10	99	76½	85	4750

Table V: Approx. Cabinet Dimensions, Water-Source Units

Standard size, horsepower	Over-all width, inches	Over-all depth, inches	Over-all height, inches	Weight pounds
3	70	58	69½	1288
5	70	58	69½	1691
7½	83	61½	76	1809
10	99	79½	80½	2800

Table VI: Heat Production, Air-Source Units

Standard size, horsepower	Heat produced, Btu per hour, various air temps. 20 F	30 F	40 F
3	30,400	33,400	36,700
5	50,600	55,500	61,000
7½	75,000	83,300	91,500
10	101,000	111,000	122,000

Table VII: Heat Production, Water-Source Units

Standard size, horsepower	Heat produced, Btu per hour based on 50 F water	Water required* gpm
3	48,000	16
5	80,000	20
7½	110,000	25
10	160,000	25

* Less water is needed if temperature of water is higher than 50 F; more water, if temperature is lower.

source, the more of nature's heat is garnered by the machine. Engineers and salesmen refer to this characteristic when they talk of the "COP," or coefficient of performance. The coefficient of performance is simply a ratio of the total useful heat delivered by the heat pump, and the amount of electrical energy required to run it.

This writer considers the "COP" to be a significant measure of results accomplished, after the system is in operation, but does not use it to predict a system's behavior, since the "COP" varies with the weather, changes in temperature of the heat source, and fluctuations in the efficiency of the system components. In general, a high coefficient is essential if economy of operation is to be realized.

One problem that can be exceedingly troublesome with water heat sources, concerns disposal of the water after the heat has been extracted. City installations naturally look to the sewers, but sooner or later municipalities will take cognizance of such practices as producing sewer overloading hazards. In the southern states, running the water to dry wells is a fairly common practice, particularly if local wells produced the water in the first place. The problem is far more acute in northern latitudes, being complicated by freezing.

Just where the water is going is a question that the architect will be required to answer, and should be able to answer, before a heat pump installation is approved.

There is also the question of water sources. City water is expensive, and a water bill of perhaps $2 a day for a 5-ton system can make the owner loudly unhappy. There is also a strong possibility of the city's refusing to sell water for such usage particularly where the supply is critical, as in New York. A complication which arises from the use of a well as a source of supply, is that some areas tend to limit or prohibit withdrawal from wells, as such practice may deplete the water table. This means that legal blessings on a well project should be secured before the well is driven, and perhaps before a decision is made to use water from any source, as convenience for a heat pump.

If we set up a balance sheet for the water plan, we have:

For—

1. The temperature of water from any source, never falls below 32 F (or it ceases to be water).
2. Water temperatures remain quite constant throughout the heating season. These temperatures are pleasingly high in most sections of the country.

Against—

1. Buying water in a city is expensive, and *it may not be available* at any price.
2. Obtaining water from wells imposes a substantial expense for driving the wells, and is followed forever after by a pumping cost.
3. Disposal of the water can become a difficult and disagreeable problem.

Since the obtaining and handling of water is likely to be somewhat expensive, the decision to use it or not to use it depends largely on its temperature. If its temperature is high enough, say 55 F to 60 F, the resulting economy in compressor operation may justify our selecting it. Each case must be weighed on its merits, another worry for the architect or engineer.

For reasons of economy, we sometimes can arrange a combination of heat sources, for example, air and ground coils, or air and water. In Indiana, air and ground coils function successfully in a small residence, while air and well water are as efficient in Virginia. In Ohio, at Portsmouth, the Ohio Power Company uses air for their office building until the outside thermometer shows 20 F, at which temperature a switchover is made automatically to city water. On a rising mercury, the city water stops and the air evaporator resumes the function of furnishing heat.

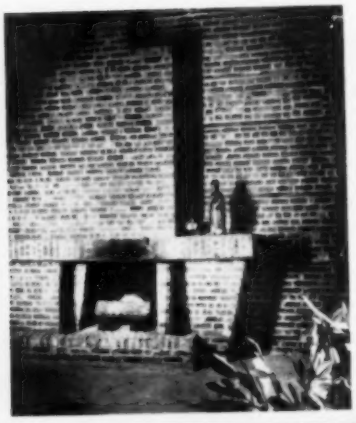
These combination systems are interesting and effective, but the mixing of heating agents into a co-ordinated design is not always accomplished without architectural headaches. Perhaps the more simple way, though possibly more costly, is to have the heat pump designed for an outside 20 F, and supplement its output with resistance heaters.

(This discussion is continued on page 142)

duplex apartment

duplex apartment

The problem was to alter the two lower floors ("English basement" and first floor) of a typical, pre-Civil War, five-story town house into a self-contained duplex apartment. Since the house faces north on a heavily traveled cross-street, it was impractical to think of employing extensive clear glass on the street-front. However, it was desired to introduce as much north daylight as possible and somehow to open up some of the interior space to the natural light source.



Location	New York, New York
Architect	Edgar Tafel
General Contractor	John Post Construction Company

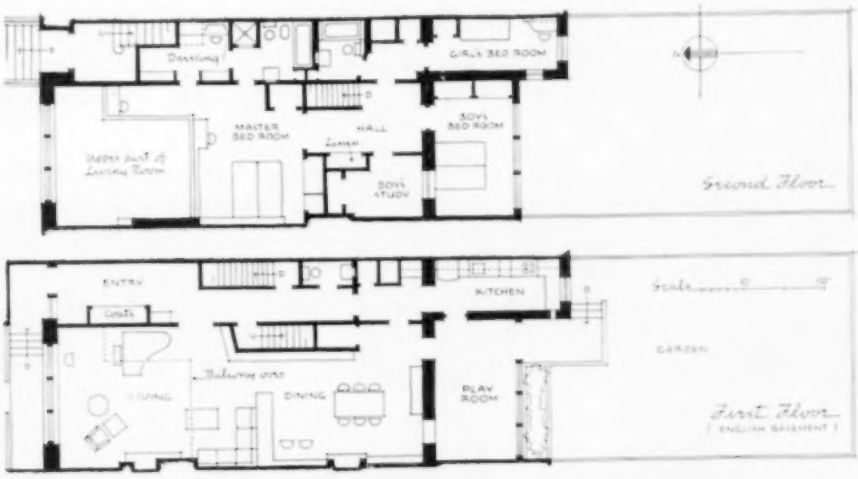
Flush-mounted light fixtures occur in the balcony soffit (above); *the brick of the fireplace wall* (above, right) *is the masonry of the party wall; the ceiling of the dining area* (right) *is finished with acoustic plaster. The bedroom balcony and view down from it* (acrosspage) *illustrate the warm effect gained by simple use of simple materials. "The best compliment I have received from the client," the architect reports, "is that he cannot remember who designed the house —himself or the architect—for it is so close to the solution and feeling he desired."*

Photos: Gottscho-Schleisner

To solve this, the architect removed a portion of the upper floor, providing a full two-story height at the front for the living room, the upper-level master bedroom becoming, in effect, a deep balcony above it. The entire north wall, except for the portion below grade, is a huge window, glazed with obscured, patterned glass. The only added structural elements were two steel beams and two angles.

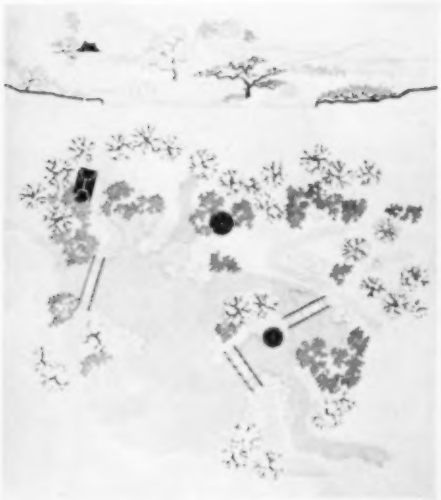
The party wall of the house, toward the west, was cleaned to the original brick by removing the plaster, steaming the brickwork, and repointing where necessary. Living and dining spaces are treated essentially as one area, the only divisions being a low cabinet unit and the lower ceiling of the dining area.

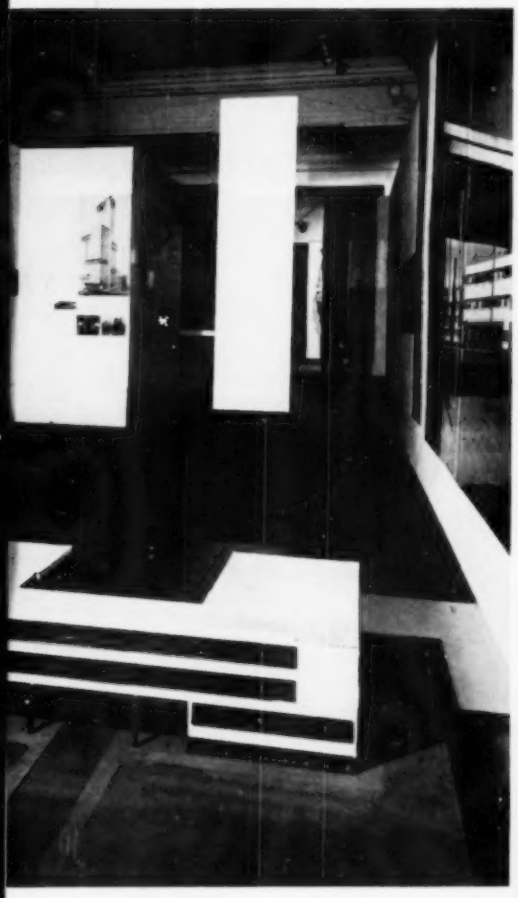
The combination of plain brick and the new cedar woodwork (for built-in elements, balcony railing, and ceiling of the big room and bed balcony) result, in the architect's words, in a "warmth not expected in this locale."



display techniques

The three drawings here are excerpts from Chapman's display-design research: the Paris Opera House ("vanity of humans showing off before humans"); a Japanese garden of Shin Dynasty ("progressive and continuous merging of one space into another"); and the 1938 Zurich Exhibition, wherein "a flume and boats provide visitors with a moving panorama" in a directional, controlled path, in addition to pedestrian circulation.





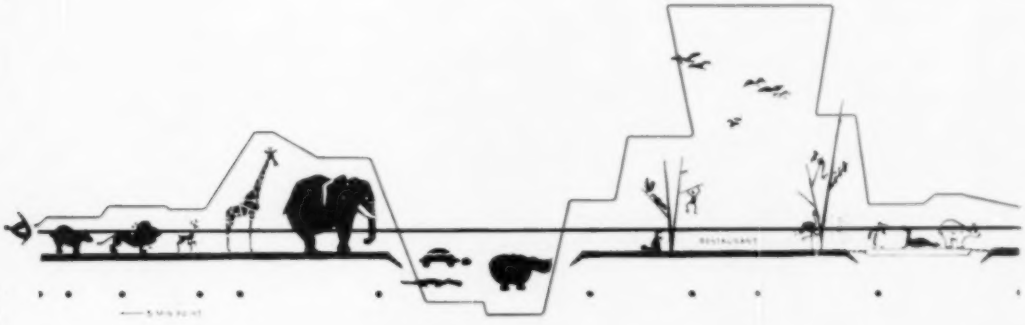
Salient factors involved in design for display are (1) dramatization of the characteristics of objects on display; (2) organization of components in an arresting sequence; and (3) provision for movement of visitors within or around the exhibit. To highlight these criteria, we borrow from an exhaustive thesis developed at Princeton University by Donald E. Chapman, M. Arch. '49. He proceeded from a study of display fundamentals to their application in the design of a remarkable zoological garden (pages 111-113). To link theory with practice, we supplement Chapman's thesis with photographs of a few actual recent exhibits.

The retrospective exhibition of work by Dr. Walter Gropius, planned for its major opening at the Boston Institute of Contemporary Art (left) but adaptable for knock-down, shipment, and rearrangement in numerous other places, was designed by Gyorgy Kepes, Professor of Visual Design at the M. I. T. School of Architecture and Planning. It not only provides an architectonic background that echoes qualities of the work displayed, but organizes the work in a rhythmic, horizontal flow-sequence of photographs, with occasional vertical emphasis. This, plus the left-right "rail for the eye" that the textual matter provides and slight directional changes in wall panels and baffle panels, tempts visitors in and around the exhibit. Photo: Fred Stone

display techniques

In developing the setting for the "Good Design" show at the Merchandise Mart in Chicago *(plan and photo acrosspage)*, Architect Paul Rudolph brought visitors almost into the center of the exhibit between curved, transparent screens made of plastic cord strung between floor and ceiling frames. While allowing the spectator complete freedom of movement, his subtle use of lighting, alternating shadowy areas with brilliant pools of light flooding exhibit groups, estabished a predetermined path which most visitors actually followed. Freely placed wall panels and the peek-a-boo circular room were further devices introduced to maintain interest and lead the visitor from exhibit to exhibit.

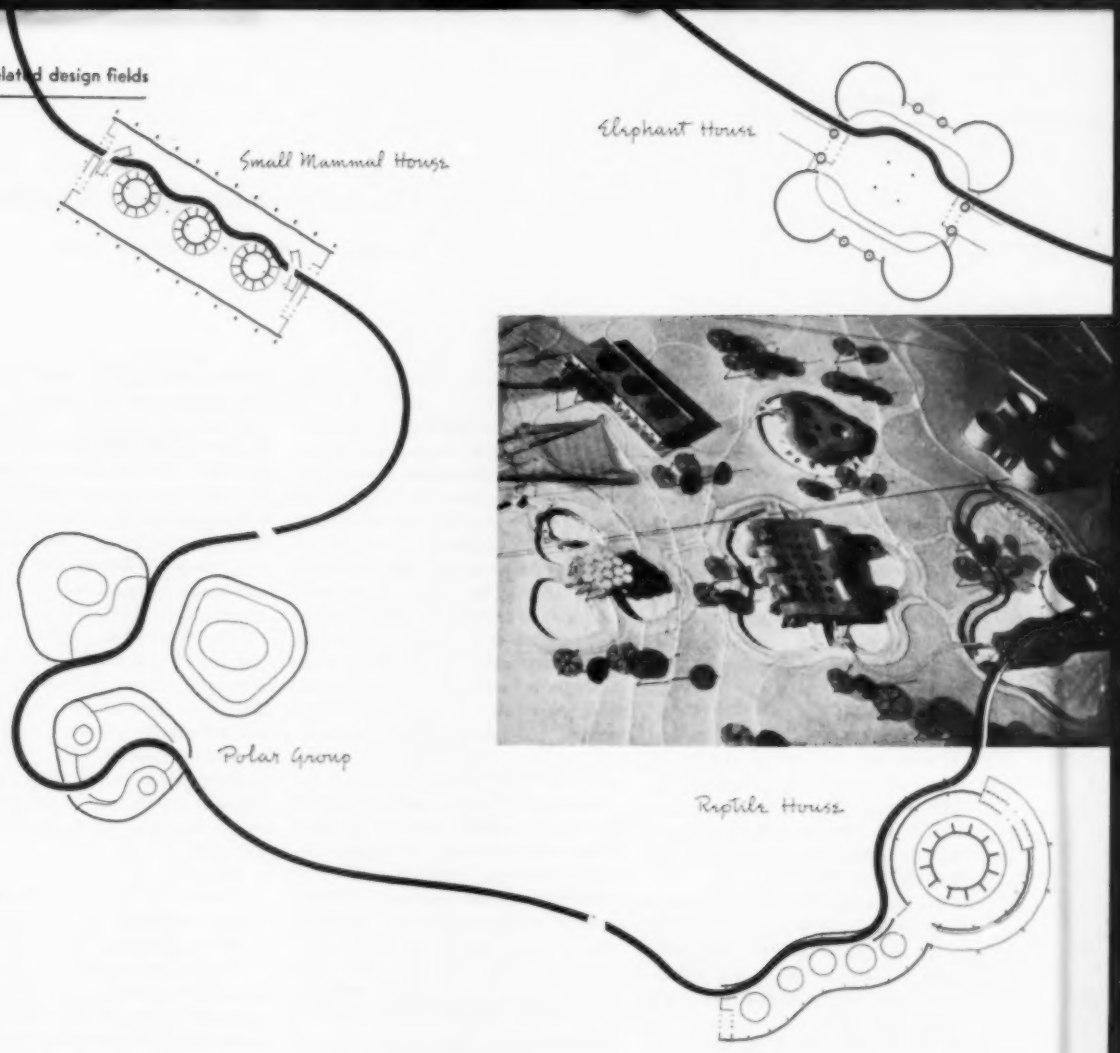
The zoological garden designed by Donald Chapman aims "to forward the premise that a zoo is a condensed garden community of animals in which the spectator is a tolerated intruder." Chapman's analysis first isolated the two main components—the static and the dynamic. Among the former are the particular animal environments—terrestrial, aquatic, airborne, or polar; the scale of



the habitat (with large animals, needing large dwellings, generally placed on the perimeter and the numerous small animals in the center, so that the spectator can view a number of small animals as readily as one large one); topographical considerations, and organization of major vistas. Dynamic elements include the movement of the animals themselves and two types of locomotion provided for visitors—pedestrian and vehicular.

Since Chapman reasoned that most pedestrians would follow a casual path, changing their course as whim dictated, walks are arranged as a series of tangential circles, allowing a free, meandering movement. For those who wish to view the zoo with a minimum of effort, Chapman worked out a flume system, whereby small, flat-bottomed boats (like those in "tunnels of love" at amusement parks) glide through a shallow waterway, between and through the various animal dwellings, in a controlled, continuous movement. The system allows visitors to disembark at any point and proceed on foot, if they so choose.

At the end of the ride, both water and boats are raised on Archimedes screw mechanisms (displays in themselves, advertising the fluid nature of the flume device) to their starting point, ready for the next trip. The path followed by this continuous flume is punctuated by two climaxes *(see "spatial sequence chart" above)*. The flow is from land animals (bears, lions, giraffes, elephants, etc.), to reptile and water creatures (turtles, alligators, hippos, etc.), to birds and tree-leaping monkeys, to the polar group. The two climaxes occur in the giraffe-elephant area, where sheer size and bulk are impressive, and in the monkey-bird-house area, where altitude and maximum spatial awareness constitute the most striking contrast. *Photo: Carl Ullrich, Inc.*



display techniques

The model of the zoo Chapman designed clearly indicates the "animal world" environment provided. The designer emphasizes that the "architectural expression" derives from his effort to find the appropriate "animal expression," resulting in "the emancipation not alone of the animals but of the architecture itself." All the houses emulate aspects of their occupants. To look at just a few, close up: the house for small mammals is small, and "it expresses the multiplicity of its small occupants through the multiplicity of its supports, placed outside its walls so that the spectator may count them." The elephant house "expresses bulk and solidity through the monolithic nature of its construction." Water from an overhead canopy tumbles down into the pools of the polar group, with the animals able to enjoy and penetrate the falls, while the spectator feels somewhat cooler himself, "just from viewing so much cascading water." And the reptile house "creeps across its pools, just as do crocodiles and snakes and alligators. Reptiles sport in concrete tubs standing in the same water that surrounds their house."

Model photos: Richard Garrison

The Architect and Public Relations: 2

by Asher B. Etkes and Raymond Dodd

For the architect specializing in industrial, school, or mass housing design, publicity on a national scale can pay dividends in the form of widespread recognition and potential commissions. An interested reader today may be a client tomorrow.

Thus, when publicizing a project, make certain that it has outstanding merit. Editors are discriminating; so are readers. Make sure that a job has one or more strong focal points of interest—appearance, construction economy, or unusual function. If it doesn't, forget it and choose another. Weak publicity is worse than none.

Always study a project carefully from the standpoint of story (or pictorial) interest before launching a publicity venture. To determine whether a job is newsworthy is not difficult if the architect can learn to regard his project impersonally. Nothing clouds vision like ego.

Say the project is a school or industrial plant. Ask yourself whether it is different in appearance from a thousand others, whether functional design has solved a problem efficiently, whether these specific benefits will be of real service to other school boards or manufacturers.

determining news value

In appraising the newsworthiness of a project, either for national or local publicity, bear in mind that fresh ideas make news; clichés seldom do.

Most people have little conception of what constitutes news although they read, listen to, or view it daily. But while they may fail to define news, they do recognize an interesting story. They talk about it.

This provides a rough bench mark in appraising news value; if a building project excites favorable conversation, it may be potential news. It's not an infallible rule but generally reliable, provided the news is directed at an audience interested in the subject matter. In other words, aim carefully and make each publicity shot register.

The publication field is enormous, catering to a wide variety of appetites ranging from movie star worship to abstract technology. If an architect's field of vision has not extended much beyond the perimeter of his drawing board, he may be surprised at the tremendous scope of American publishing. In addition to the many thousands of daily and weekly newspapers and hundreds of general consumer magazines, there are better than 2000 major trade publications covering every conceivable phase of art, construction, retailing, science, and manufacturing.

trade magazines

This is a rich field, capable of yielding a bumper publicity crop, if you know where to plant seeds of interest.

For instance, magazines other than architectural publications are interested in architecture—or certain segments of it. Few architects see these periodicals; most don't even know they exist. They are the magazines concerned with component parts of building—roofing, air conditioning, engineering, illumination, and so forth. Most want and need good story material.

Let's examine a theoretical project, a modern textile plant, in relation to these building trade publications. Pretend that it is a fine functional job offering new ideas in the use of new materials, that it indicates smart money-saving engineering in addition to a pleasing and imaginative exterior.

In addition to the architectural periodicals, an obvious "market" for stories and pictures of this plant is the textile magazine field. Depending on the type and location of the project, the editorial welcome mat might well be out at *Textile World*, *Textile Age*, *Textile Industries* or *Southern Textile News*—the more "general" publications in this field.

But let's dissect the project piece by piece to determine how much more publicity mileage can be obtained.

Is the roof construction novel? Was a new type of insulation and surfacing specified? Does the air conditioning offer any fresh ideas in design or installation? What's unusual about the fenestration? Has it been integrated cleverly with automatic artificial illumination to provide continuous good lighting on work surfaces? What about floor arrangement? Has it provided a smart answer to difficult traffic, equipment, and maintenance problems? In the basic construction, has design and good engineering cut costs, provided speedy construction, or overcome unusual site deficiencies?

There are a number of publications definitely interested in good copy on each one of these components. Here's a partial list:

The roof:
American Roofer and Siding Contractor; Journeyman Roofer and Waterproofer; Roofing, Siding and Insulation.

The air conditioning:
Air Conditioning and Refrigeration News; Heating, Piping and Air Conditioning; Domestic Engineering.

The fenestration and lighting:
American Glass Review; Glass Digest; Glass Industry; Illuminating Engineering; Electrical Engineering; Electrical World.

The floor arrangement:
Factory Management and Maintenance; Industrial Equipment News; Mechanical Engineering; Mill and Factory; Plant Engineering.

The basic construction:
Construction Methods and Equipment; Constructor; Engineering News-Record.

Remember, this is only a partial list of the more general trade magazines that would be interested in this theoretical textile mill; if it were tangible the list could be expanded. There are a great many more periodicals in each of the above categories interested only in single

aspects of their fields or concentrating solely on news from given geographical areas.

To the uninitiated, picking a selective trail through this maze of publications appears a bewildering if not insurmountable task. As the architect seeks specific audiences for his publicity, just how does he determine what type of magazine they read—or even find out about magazines he never knew existed?

The task is not easy but neither is it too difficult. There are a number of books carrying listings of all types of publications, some available in public libraries. There is one, however, that fills the needs of the novice publicity planner more than any other: the business publications issue of Standard Rate and Data Service, Inc., 333 N. Michigan Ave., Chicago 1, Ill. It has long been a vital tool of the advertising agency; it can prove a handy tool for architect as well.

Its main value is the careful breakdown and cross indexing of individual and related trade fields, the magazines that serve them, and a census of the type of readers for each publication listed. These furnish valuable clues in determining editorial needs and the character of readership. Beg, borrow, or order a copy of this directory; it can save much time, money, and disappointment in a publicity program.

how to approach an editor

While most magazine editors are hungry for good copy, they seldom snap at it. Conversely, the average editor is friendly, polite, and inclined to answer correspondence promptly.

If you have a story for a selected magazine, just sit down and write the editor. Tell him who you are, what you have done, and why you think it will interest him and his readers. Include details—keep them short—and enclose a couple of photographs. Only one of two things can happen; the editor will either want the story or he won't. Incidentally, if he understands he has exclusive rights to the story in his field, chances of acceptance may be enhanced.

If you have really sparked interest, the editor may request a prepared story of designated length, specify photographs needed and even forward a sample copy of his magazine to indicate "style." On the other hand, he may desire staff coverage of your project and assign either a staff writer or regional correspondent to gather the facts firsthand.

Don't despair, if you're a wizard with the lettering pen but a poor man of letters. Just get the facts down on paper, remembering to stress in detail all the points of apparent "conversational" interest.

Of course, editors of small-staffed trade magazines enjoy receiving copy that requires little or no editing. But such "outside" copy is the exception rather than the rule. Magazine staffs are fully prepared to rewrite copy to conform with policy or style and no good story is discarded merely because it fails to reveal literary genius.

co-operative publicity

The personal approach is not the only way to get publicity results in these valuable trade publications. There's another method available to most architects, but seldom exploited by them.

Major makers of building materials already are involved in publicity, have experienced staffs or agencies ready and willing to lend a helping hand to the architect using their companies' products. A newsworthy building design is the only entry fee.

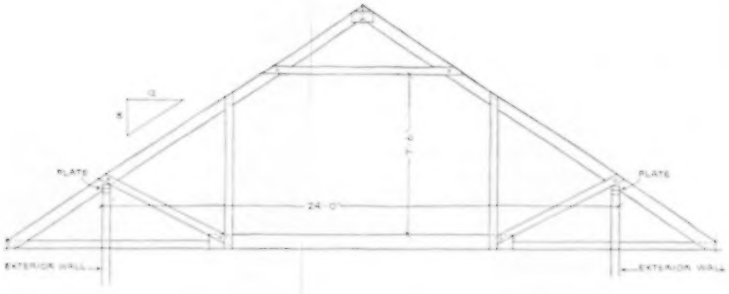
The logical starting point of such a co-operative publicity venture is the company salesman. Some are alert to publicity possibilities, others need gentle prodding. In any event, sound them out. The company publicity staffs lean heavily on the salesman for story material; he is their field reporter. And it's to his advantage—as well as yours—to submit good publicity material from his territory. So prod him if you must.

For your own information, manufacturers of glass, cement, insulation, floor surfacing, paints, and electrical equipment all have extensive publicity setups that can reap a surprisingly rich publicity harvest for the architect in every conceivable type of publication. For example, a school architect specifying prismatic glass block fenestration for classroom daylighting may eventually read the story of his school plant in influential school magazines, in general consumer publications, in major Sunday newspaper magazine sections, and in farm papers as well as in the leading architectural journals, all as a result of a manufacturer's publicity activity.

There's still another possible—and profitable—aspect of such co-operative publicity: the use of an outstanding job (and credit to the architect) in the manufacturer's advertising. The word "profitable" is used advisedly; we mean the obvious value of receiving design credit in an attractive advertisement appearing in a large number of national-circulation magazines.

It cannot be stressed too strongly that the benefits accruing through this co-operative publicity and advertising should not be left to chance. Many company salesmen are vitally interested in such customer service but they must be told about your story. When such co-operative ventures are launched, be prepared to supply all the needs of the publicity staff. The same advice applies when using the personal approach to an editor. Prepare extra blueprint copies, arrange to have photographs taken by a competent photographer (snapshots seldom are adequate), answer all questions excepting confidential ones involving the client and, above all, make certain that all story copy and correspondence is neatly typewritten. Sloppy material and longhand scrawls are certainly out of character with the fine contemporary work the architect is trying to publicize.

During tests for rigidity and strength of trusses, concrete blocks hung from top chords simulate a roof load equal to 5 ft of snow per sq ft; blocks placed on bottom chord (floor of upper story) represent normal occupancy load of 30 psf.



trusses for story-and-a-half houses

Builders of one-and-a-half-story houses may soon benefit from the structural economies now possible with one-story houses through the use of roof trusses. A truss has been especially designed for the story-and-a-half house by the University of Illinois Small Homes Council, as part of an FFHA-sponsored research study on roof construction and wood-framing practices. Selected as the most successful design among others developed by the Council, the truss was found to be the easiest to fabricate and erect, and used materials most economically.

On a 24-ft span, the truss frame will support a second-floor space 12 ft in width, with a ceiling height of 7½ ft—a flexible living area which can be extended the full length of the house and divided into rooms without any necessity for load-bearing partitions and their costly supporting construction *(see illustrations)*. The truss forms a protective overhang on both sides of the structure; roof pitch is held to 8/12.

Upon completion of a concrete-block load test, which is expected to run for several months, the findings will be submitted to the FFHA Division of the Housing Research. These results will then be made generally available through the FFHA, although no actual publication will be made until next year.

p/a PRODUCTS

air and temperature control

Low Type Ventilator: weatherproofed, quiet-running, power-driven fan ventilator with low silhouette, for use either as exhaust ventilator or fresh-air supply unit; can be equipped with motor-driven fan or with V-belt and pulley drive. Sizes range from 12" to 60" fans. Standard construction is prime galvanized steel; other materials available for special-purpose use. Burt Mfg. Co., Dept. PA, 44 E. South St., Akron 11, Ohio.

Far-Air Grease Eliminator: inexpensive grease-trap device for installation in restaurant kitchen ventilating systems reduces fire hazard in exhaust ducts, helps protect motor and blower equipment, and provides better ventilation. In wide range of sizes and finishes to match existing kitchen equipment. Farr Co., P.O. Box 10187, Airport Station, Los Angeles 45, Calif.

Muelleraire Small Pipe System: completely packaged unit for use with all types of forced warm-air heating systems. May be installed in any type or size house, whether built with full or partial basement, or with crawl space. Perimeter diffusing-type registers and grilles designed for this unit are available. L. J. Mueller Furnace Co., 2005 W. Oklahoma Ave., Milwaukee 15, Wis.

Redi Bilt Oil Burner: quiet, automatic, tubeless boiler-burner units; factory packaged and wired, connect only oil line to tank and thermostat wire. Flush jacket, built-in combustion chamber, flange-mounted, equipped with three Minneapolis-Honeywell controls. Rated at 79,000, 96,000, and 132,000 Btu. Quiet Automatic Burner Corp., 33 Bloomfield Ave., Newark, N. J.

Gas-Fired Unit Heaters: new line of heaters incorporating "boiler-tube" design; horizontal steel tubes of heat exchanger staggered to provide maximum areas of prime heat surface; curved louvers direct heated air down to worker comfort-zone. Burners, pilot, and control valves combined in one removable drawer-type assembly for easy maintenance. Capacities range from 50,000 to 230,000 Btu. Trane Co., La Crosse, Wis.

Radiaire Base-Heat: new heating system combines advantages of radiant, perimeter, and forced-warm-air heating; warm, humidified air is circulated in small-size ducts and distributed through special distributors placed at baseboard of outside walls in rooms so that warm air will block off all drafts and cold air. Units available for both oil- and gas-fired operation. York-Shipley, Inc., York, Pa.

doors and windows

Acme Bi-Rail 5000: sliding-door hardware equipped with large, solid nylon wheels providing smooth, easy operation. Track is made of rust-resistant heavy-gage steel; one size will fit all door thicknesses. Acme Appliance Mfg. Co., 35 S. Raymond Ave., Pasadena 1, Calif.

Auto-Lok School Window: heavily-extruded aluminum awning window designed especially for schools and institutions; features "push-out" operation of all vents by means of rigid push-bar attached horizontally to base of bottom vent; positive opening to any position up to 90°. New construction does away with protruding and detachable window operators. Ludman Corp., P.O. Box 4541, Miami, Fla.

Kling Felt No. 113: solvent-activated adhesive-backed felt permits weather stripping of metal casements and all other windows, doors, and vents. Application is easy and quick, assuring deterioration-resistant seal against rain, wind, dust, and cold. Felt can also be used as "anti-bang" cushion for doors. Products Research Co., 3126 Los Feliz Blvd., Los Angeles 39, Calif.

Rex Combination Screen and Storm Window: steel-reinforced, extruded aluminum screen and storm window unit is quickly adaptable to almost all double-hung, primary windows without special preparations or bulky superstructure. Screen or lower storm sash can be stored, when not in use, in upper part of window. Rex Windows, Inc., 487 Bonham Ave., Columbus 3, Ohio.

electrical equipment, lighting

McKinley Luminaire: pendant-mounted, luminous-indirect unit, wide and shallow in appearance, particularly suited for office buildings, schools, drafting rooms, and other applications requiring low surface brightness in lighting. Side and bottom panels are of white, ribbed polystyrene. Available in 4' units, 16-5/16" wide x 4" deep. Pittsburgh Reflector Co., 421 Oliver Bldg., Pittsburgh 22, Pa.

Aisle-Light: recessed unit for installation along stairs or corridors; can double for porch or interior night light. Housing, finished in soft gray baked-on enamel, is 3½" x 7" x 3½"; equipped with louvered faceplate with glass behind louver. Pressteel Co., 800 Bancroft Way, Berkeley, Calif.

finishers and protectors

Ruf-Seal Cement Paint: prime coat developed primarily for porous masonry surfaces to increase workability of succeeding coats of paint. Easily mixed by adding water; applied with scrub brush to work thoroughly into masonry pores. Available in one color, white. Medusa Portland Cement Co., 1000 Midland Bldg., Cleveland 15, Ohio.

Super-Hot: ready-mixed aluminum paint, when applied to any metal surface, becomes permanently bonded to this surface upon subjecting painted metal to heat of from 500F to 1600F; maintains its brightness, will not crack, chip, or peel. Recommended especially as protective and decorative finish to furnaces, pipes, boilers, and other metal surfaces withstanding 1600F of heat. Sheffield Bronze Paint Corp., 17814 Waterloo Rd., Cleveland 19, Ohio.

Hydrocide Colorcoat: oil-based, exterior paint primes, seals, and finishes highly porous masonry surfaces in one application only; is said to withstand roughest abuse and weathering. Applied by brush or spray. L. Sonneborn Sons, Inc., 80 Eighth Ave., New York 11, N. Y.

insulation (thermal, acoustic)

Celotone: incombustible, acoustical tile molded from mineral fiber and special binders, with deep, irregularly shaped fissures providing shadowed texture similar to that of travertine. Available in thicknesses of 11/16", 13/16", and 15/16", in 12" x 24" and 12" x 12" with square or beveled edges. Factory-applied white finish is thoroughly washable. Celotex Corp., 120 S. La Salle St., Chicago 3, Ill.

Sonofaced Tile: incombustible acoustical tile (for photo see p. 123, August 1952 P/A), consisting of 12" x 12" Fiberglas board faced with easy-to-clean plastic film which absorbs sound by diaphragmatic action; film serves as vibrating drumhead, transmitting sound waves into millions of tiny air spaces in Fiberglas board. *Now available in six basic decorator colors.* Owens-Corning Fiberglas Corp., Toledo 1, Ohio.

sanitation, water supply, plumbing

"Close-Cupid" Horizontal Cellar Drainer: self-priming, centrifugal sump pump for use as protection against flooded cellars. Flexible assembly permits pump to be set away from sump pit up to maximum distance of 8', if user finds it inconvenient to place pump on edge of sump. Units available for 2' and 5' pit depths. Goulds Pumps, Inc., Seneca Falls, N.Y.

Combination T & P Valves, 200 Series: new line of temperature and pressure relief valves, for use in preventing excessive pressure and temperature in hot-water tanks and heaters. Automatic resetting type; Btu-rated for proper selection. McDonnell & Miller, Inc., 3500 N. Spaulding Ave., Chicago, Ill.

Electric Water Cooler: completely packaged cooling unit with hermetically-sealed refrigeration system, designed for remote installation; will supply fresh cold water to as many as three separate drinking fountains. For use in hospitals, offices, terminals, and any location where there is need to save valuable floor space. Westinghouse Electric Corp., E. Springfield, Mass.

specialized equipment

"Space-Saver" Grill Stands: two new, all-metal units added to standard line of soda fountain and luncheonette equipment. Design offers choice of straight or offset top for deep friers and up-draft, down-draft, or straight-out venting. Removable, laminated cutting board provides wide, ample working area. Storage facilities include readily accessible stainless-steel lower shelf, wide top shelf, and self-closing bread drawers. Units available in 5' and 6'-6" lengths. Liquid Carbonic Corp., 3100 S. Kedzie Ave., Chicago 23, Ill.

Drive-In Bank Window: electrically-operated, bullet-proof bank-teller's window offers effortless, fast operation, greater visibility, increased counter space, and considerably reduced installation costs; stainless steel trim around window is designed to eliminate grouting or concreting; two spacious drawers in counter. Safety devices protect deposit receptacle. Mosler Safe Co., Hamilton, Ohio.

pa MANUFACTURERS' LITERATURE

★ *Editors' Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.*

air and temperature control

1-199. Agitair Square and Rectangular Diffusers (RC 105), 4-p. bulletin giving dimensions and installation details for three types of square and rectangular air diffusers equipped with mounting frames and removable cores. Photos. Air Devices, Inc., 17 E. 42 St., New York 17, N. Y.

★ **1-200. Manual for the Design of Box-Plenum Type Air-Conditioning Duct Systems** (Project DGR-2-AC), 18-p. booklet. Design procedure for inexpensive types of air-duct systems for winter, summer, or all-year-conditioning units, with efficiencies equal to some higher-cost systems now in use. Worksheets for supply and return-air duct sizing; tables, drawings. American Gas Assn., 420 Lexington Ave., New York 17, N. Y. ($1 per copy; make out check or money order directly to American Gas Assn.)

1-201. Central-Control Panel Systems (F-5265), 8-p. bulletin outlining method of installing economical, automatic-electric, central-control panel system for heating and air-conditioning units. Advantages, wiring installation diagram. Barber-Colman Co., 150 Loomis St., Rockford, Ill.

1-202. Kno-Draft (K-29), 4-p. folder describing several types of high-pressure air diffusers, made to handle static pressures ranging from 1 to 4 in. water gage, duct velocities up to 3000 fpm, and 25-degree temperature differentials; air volumes precisely regulated from full open to completely closed positions by unit's calibrated damper. Types, uses, advantages, photos. W. B. Connor Engineering Corp., Shelter Rock Lane, Danbury, Conn.

1-203. Central Station—Cabinet Type Air-Conditioning Units (114), 4-p. folder defining function and purposes of four commonly accepted types of air-conditioning unit assemblies. Typical designs, specifications check list. National Assn. of Fan Manufacturers, Inc., 2159 Guardian Bldg., Detroit 26, Mich.

1-204. Water Tube Steam Generators, AIA 34-B-1 (B-3275), 6-p. bulletin on completely shop-assembled water tube boilers available in capacities from 7500 to 27,500 lbs steam per hour; can be fired with light or heavy oil, combination light or heavy oil and gas, natural, manufactured, or coke oven gas; erection time and expense claimed to be substantially reduced over conventional field-assembled or semi-packaged units. Dimensions, elevation drawings, operating data. Titusville Iron Works Co., Titusville, Pa.

1-205. Installing the Viking Attic Fan (528), 6-p. leaflet. Guide to proper location and mounting of compact, residential attic fan. Step-by-step installation photos. Viking Air Conditioning Corp., 5601 Walworth Ave., Cleveland 2, Ohio.

1-206. Package Air Conditioners, Models SCY-1050 and 1550 (C-1100-S81), specification sheet describing two packaged air-conditioning systems, of 10-ton and 15.5-ton capacities, respectively; cooling, dehumidification, ventilation, circulation, air cleaning (and heating if desired) provided by both units in five sizes. Capacities, photo. Worthington Corp., Harrison, N. J.

construction

3-167. Economy in Long-Span Steel Arches, Trusses, 4-p. bulletin illustrating representative types of patented steel arches. Advantages of arch-roof method, typical installation photos. Arch Roof Construction Co., Inc., 113 W. 42 St., New York 18, N. Y.

3-168. Pittsburgh Steeltex Floor Lath, AIA 4-E-2 (DS-133), 12-p. booklet. Description of combination form and reinforcement for concrete floors and roofs over steel or concrete-joist construction. Advantages, specifications, test data, safe loads table, installation data. Pittsburgh Steel Products Co., 1443 Grant Bldg., Pittsburgh 30, Pa.

3-169. Trip-L-Grip Framing Anchors, 4-p. folder. Instructions on use of adjustable framing anchors as joist hangers for any common span; claimed to be money-, labor-, and space-savers, and more economical than strap hangers. Advantages, span limits, application data, other uses. Timber Engineering Co., 1319-18 St., N.W., Washington 6, D. C.

doors and windows

4-202. Strand All-Steel Garage Doors (S-306), 16-p. folder illustrating five types of galvannealed-steel garage doors for 8', 9', and 16' openings. Proper procedure for building garage-door openings in those sizes with minimum of trouble. Photos. Detroit Steel Products Co., Strand Garage Door Div., 3209 Griffin St., Detroit 11, Mich.

4-203. Duo-Glaze Windows and Doors, 6-p. leaflet on horizontal-sliding aluminum window and door frames designed to accommodate ½" and 1" dual glazing. Advantages, full-size details, typical installation. Glide Windows, Inc., 7463 Varna Ave., North Hollywood, Calif.

4-204. Overhead Operating Doors, AIA 17a2, 20-p. booklet on various types of overhead doors and equipment for industrial, commercial, and residential installations. Types, construction features, details, custom specifications, photos. Huck-Gerhardt Co., Inc., Luzerne & G Sts., Philadelphia 24, Pa.

4-205. Porch Enclosures, 4-p. folder illustrating uses of aluminum-framed, glass-louvered jalousies. Advantages, photos. Ludman Corp., P.O. Box 4541, Miami, Fla.

Booklet and folder illustrating decorative door designs, applied to both single-slide and center-opening or two-speed passenger elevator entrance doors. Photos. Otis Elevator Co., 260 Eleventh Ave., New York, N. Y.:

4-206. Ornamental Designs for Otis Elevator Entrance Doors (B-812)

4-207. Special Entrance Designs (B-806)

electrical equipment, lighting

5-137. Pushmatic Electri-Centers, AIA 31-D-3 (B-360), 8-p. bulletin on electric-control panel using "push-button" circuit breakers, designed to replace conventional fuse boxes in homes, small factories, and commercial buildings. General information, types, specifications, accessories, illustrations. BullDog Electric Products Co., 7610 Joseph Campau St., Detroit 32, Mich.

Two 4-p. catalogs, one describing several types of chrome-finished, recessed fixtures for all purposes; the other illustrating pendant fixtures, portable table and pin-up swivel lamps, all of contemporary design. Prices, illustrations. Pressteel Co., 800 Bancroft Way, Berkeley 2, Calif.:

5-138. Prescolite Lighting, Recessed Series (R-7)

5-139. Prescolite Lighting, Architectural Series (A-1)

finishers and protectors

6-77. Monco-Alochrom (C-54-8), 4-p. pamphlet. Advantages of decorative, aluminum-chromium coating that provides watertight protection for all surfaces; widely used on factory and office interiors; exteriors of tanks, water towers, bridges, fire escapes, garages, workshops, machinery and equipment, dairies, etc.; heat resisting, impervious to rust and corrosion. Uses of individual grades, covering capacity. Monroe Co., Inc., 1070 3 Quebec Ave., Cleveland 6, Ohio.

6-78. Cuprisote, AIA 19-A-3, 4-p. folder describing lumber treated with acid cupric-chromate wood preservative. Types of applications, general data, consultation services applicable to treatment and preservation of wood. Protexol Corp., 81 Market St., Kenilworth, N. J.

6-79. Hydrocide Colorcoat (BP-3055), 6-p. folder. Data on pigmented oil paint and aggregate coating for protection of old and new masonry surfaces; primes, seals, and fills cracks in one operation; available in five masonry colors and white. Color samples, application directions. L. Sonneborn Sons, Inc., 80 Eighth Ave., New York 11, N. Y.

insulation (thermal, acoustic)

9-81. Mono-Block and Powerhouse (E-234-52-J-33), 4-p. pamphlet. Description of two

insulating materials: porous, lightweight rigid blocks made of black mineral wool and inorganic clay binder, with low thermal conductivity over entire temperature range; insulating and finishing cement, consisting of dry mixture of black mineral wool, hydraulic setting binder, and other ingredients, with thermal conductivity comparable to that of other insulating cements. Advantages, tables of thermal conductivity, photos. Baldwin-Hill Co., 500 Breunig Ave., Trenton 2, N. J.

★ **9-82. Insulations for Metal Buildings,** 8-p. booklet offering complete line of glass fiber acoustical and thermal insulations for metal building needs. Product data, insulation design consideration:, finishing instructions, photos, drawings. Owens-Corning Fiberglas Corp., Nicholas Bldg., Toledo 1, Ohio.

9-83. Perlite Insulating Aggregates, AIA 21-A-5, 21-C-1, 3-D-3, 4-p. folder containing specifications for insulating perlite plaster and perlite concrete. Mix designs, advantages, typical applications. Perlite Mfg. Co., P.O. Box 478, Carnegie, Pittsburgh, Pa.

9-84. Porex, 8-p. brochure describing structural slabs made of mineralized wood fiber bound under pressure with portland cement, for insulating and acoustical treatment of roofs, floors, walls, etc. Properties, where and how used, allowable spans, specifications, illustrations. Porete Mfg. Co., North Arlington, N. J.

9-85. Where and How To Use Stramit, 8-p. brochure on rigid building board, manufactured from ordinary wheat straw, with high insulating and sound-deadening values, eliminating need for additional insulating materials. Properties, specifications, details, photos. The Strawick Co., 1847 N.W. 5 St., Oklahoma City, Okla.

sanitation, water supply, plumbing

19-286. National Disposer, 6-p. leaflet illustrating kitchen sink garbage disposer; fits any single or double bowl with 3½" or 4" drain opening, or larger openings with special adaptor. Operation, installation data, electrical rough-in diagrams, advantages, general specifications. National Rubber Machinery Co., Plumbing Equipment Div., 47-55 W. Exchange, Akron 8, Ohio.

19-287. Fabricated Fittings by Nayler (525), 4-p. bulletin. Specifications and illustrations of standard, carbon-steel fittings for lighweight pipe—elbows, tees, laterals, wyes, crosses, bends, hoods, etc. Fittings also available in other metals. Naylor Pipe Co., 1230 E. 92 St., Chicago 19, Ill.

19-288. Symbols of the Modern Bathroom, 4-p. folder. Dimensions and illustrations of recessed, stainless-steel towel dispensers for light and heavy traffic areas in public lavatories. Scott Paper Co., Chester, Pa.

specialized equipment

19-289. Kitchen Products, AIA 35-C-12 (KP52), 28-p. catalog presenting full line of baked-enamel-finished steel kitchen equipment, including cabinets for all purposes, counter tops, various types of sinks and sink fittings. Illustrations, dimensions, selection guide, installation data, contents table. American Radiator & Standard Sanitary Corp., Bessemer Bldg., Pittsburgh 30, Pa.

19-290. Crosley Complete Kitchens (FL-8797-171), 12-p. catalog. Illustrations of rust-resistant, baked-enamel-on-steel refrigerators, ranges, sinks, cabinets, electric water heaters, counter tops, and accessories. Dimensions, features, specifications. Avco Mfg. Corp., Crosley Div., 1329 Arlington St., Cincinnati 25, Ohio.

19-291. Bessler Disappearing Stairway (500), 4-p. bulletin offering seven models in disappearing stairway line, adaptable to new or old residential needs; units permit quick, easy access to upper areas that otherwise might not be used in homes, garages, etc. Dimensions, illustrations. Bessler Disappearing Stairway Co., 1900 E. Market St., Akron 5, Ohio.

19-292. Grant Cubicle Hardware, AIA 27-C, 4-p. bulletin showing construction features of hospital-cubicle curtain-track and assembly hardware. Typical plan views and other drawings, suggested specifications. Grant Pulley & Hardware Co., 31-85 Whitestone Parkway, Flushing, N. Y.

19-293. Rolling Gymstands, AIA 35-F-11 (R-52), 16-p. catalog describing combined wood and steel rolling gymstands. Design and construction, dimensions, specifications, planning aids for gym seating, photos, drawings. Wayne Iron Works, Wayne, Pa.

surfacing materials

19-294. Asphalt Roofing and Siding (4647E), 32-p. catalog covering line of asphalt roof shingles and siding products, illustrated with full-color pictures reproducing color blends, two-tone colors, and solid colors. Discussion of manufacturing process. Certain-teed Products Corp., 120 E. Lancaster Ave., Ardmore, Pa.

19-295. Dolomite Roofing Granules, AIA 12-B-1, data sheet containing new information on white, crystalline mineral granules for built-up tar-and-gravel type roofing. General data, comparative properties. Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, Calif.

vertical traffic

20-10. OILIFT Elevators, AIA 33, 16-p. catalog presenting line of oil-hydraulic elevators for freight and passenger service; wide range of installations, from small apartment house elevators to heavy-duty units capable of lifting fully loaded motor trucks from floor to floor in factories, warehouses, etc. Types and sizes, requirements, construction data, illustrations. Globe Hoist Co., Mermaid Lane & Queen St., Philadelphia 18, Pa.

(To obtain literature, coupon must be used by 12/1/52)
(We request students to send their inquiries directly to the manufacturers.)

PROGRESSIVE ARCHITECTURE, 330 West 42nd Street, New York 36, N. Y.
I should like a copy of each piece of Manufacturers' Literature circled below.

1-199	1-200	1-201	1-202	1-203	1-204	1-205	1-206
3-167	3-168	3-169	4-202	4-203	4-204	4-205	4-206
4-207	5-137	5-138	5-139	6-77	6-78	6-79	9-81
9-82	9-83	9-84	9-85	19-286	19-287	19-288	19-289
19-290	19-291	19-292	19-293	19-294	19-295	20-10	

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please print 10/52

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These attractive, modern walls are permanently strong and rigid. Yet, in a matter of hours—not weeks—they can be taken down, re-arranged or moved to a new location, and re-erected . . . with Hauserman's own nation-wide field organization handling the complete job from start to finish.

In addition to the glazed railing illustrated above, Hauserman *Movable* Interiors are available in a wide variety of types and elevations for all commercial and industrial offices, laboratories, schools and hospitals.

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HOSPITALS • INDUSTRIAL PLANTS

Armstrong's De Luxe Asphalt Tile offers distinctive floor beauty and unmatched durability in its price class. Its handsome swirl marbleization is produced by an exclusive manufacturing technique. This process also interlocks the fibers and binders in many directions, giving the material exceptional strength and flexibility.

Employees' Lounge, Lever House, New York City
Skidmore, Owings & Merrill, Architects
The Raymond Loewy Corporation, Interior Design

ARMSTRONG'S ASPHALT TILE

ARMSTRONG CORK COMPANY • LANCASTER, PENNSYLVANIA

p/a interior design data

employee facilities

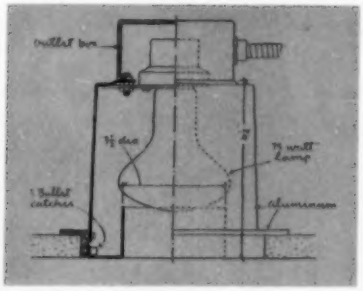
location	U. N. Conference Building, New York, New York
architect	U. N. Planning Office
director of planning	Wallace K. Harrison
interior design	Abel Sorenson, in charge

wallpaper

acoustical plaster

asphalt tile

ceramic tile



lighting

belgian linen

An outstanding fact about this employes cafeteria is that it has a clientele of four thousand from more than sixty countries. It is equipped to serve four hundred at one time. The decoration has a sort of universal quality—the wall behind the service area is red over a white tile wainscot, the columns are blue-green, the draperies are panels of solid red, solid yellow, and solid green, and the wallpaper is a multi-colored print on a white ground. Every nation could find its own colors.

Most of the exterior wall is glass, but supplementing the natural light are spotlights recessed in the ceiling, which are trained over the individual tables, and stronger ones which highlight the food at the service tables.

Few dining places can boast the magnificent view this one has, nor can they afford a changing panorama of this scale.

Photos: Gottscho-Schleisner

data

Chairs: #1216/ solid saddle seat, solid back/ walnut finish on hardwood/ bent-plywood legs and supports for back/ Thonet Industries, Inc., 1 Park Ave., New York, N. Y.

Tables: #3163/ metal pedestal base, aluminum column/ 30" sq. top, tan linen Formica/ Thonet.

Draperies: L/ Belgian linen/ Konwiser, Inc., 39 W. 17 St., New York, N. Y.

Cabinetwork designed by United Nations Headquarters Planning Office

Wallpaper: "Trains"/ designed by Saul Steinberg/ Piazza Prints, Inc., 509 Madison Ave., New York, N. Y.

Flooring, dining area: asphalt tile/ Kentile, David E. Kennedy, Inc., 58 Second Ave., Brooklyn, N. Y.

Flooring: quarry tile/ Carlyle Mfg. Co., Ironton, Ohio

Ceiling: acoustic plaster/ "Kilnoise"/ Kelley-Island Lime & Transport Co., Cleveland, Ohio

Windows: aluminum sash/ General Bronze Corporation, Garden City, Long Island

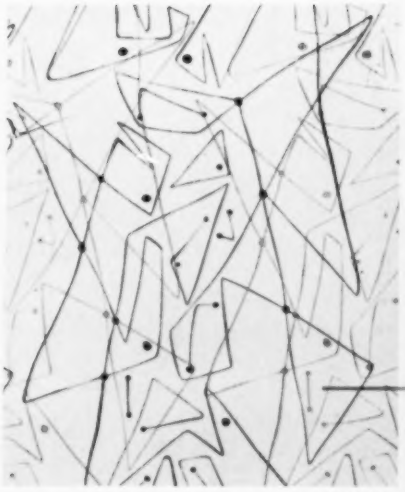
Air conditioning: conventional comfort cooling/ ceiling diffusers/ Anemostat Corp. of America, 10 E. 39 St., New York, N. Y.

Convectors: Vulcan Radiator Co., 50 Church St., New York, N. Y.

Paint: Mercatone Flat Finish, M. J. Merkin Paint Co., 1441 Broadway, New York, N. Y.

employee facilities

location | Lever House, New York, New York
architects | Skidmore, Owings & Merrill
interior designers | The Raymond Loewy Corporation



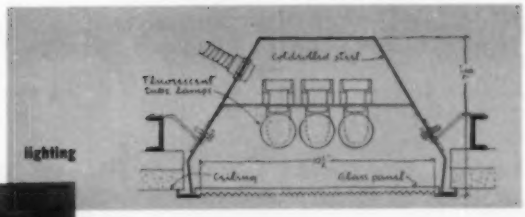
draperies

louver screens

asphalt tile

acoustical tile

lighting



wood planting boxes

Various areas of the employes lounge at Lever House, those for lounging and those for game playing, are separated by louvered-screen walls and planted boxes which extend from the window wall. The decoration, mainly in greens and yellows and simple in execution, lends its part to the creation of an airy, informal atmosphere. Lighting, achieved by the uncluttered window wall overlooking the central court and by inconspicuous yet effective flush-fluorescent ceiling fixtures, has become a very real part of the decoration. The drapery fabric, a fine-lined abstract pattern in three values of green on a light ground, forms an effective frame and contributes to the lightness of the lounge.

Photos: Don Morgan

data

Lounge chairs: natural-wood finish/ executed by Advance Design, Inc., 45 W. 33 St., New York, N. Y./ **upholstery:** emerald green, chartreuse, yellow plastic upholstery/ F. Schumacher & Co., 535 Madison Ave., New York, N. Y.

Occasional chairs: Advance Design, Inc.,/ **upholstery:** yellow-beige plaid/ Knoll Associates, Inc., 575 Madison Ave., New York, N. Y.

Sofas: Advance Design, Inc.,/ upholstery, black and gold metallic fabric/ Goodall Fabrics, Inc., 525 Madison Ave., New York, N. Y.

Card tables, cocktail tables: legs, black-painted metal/ topped with grass cloth Formica-treated/ designed by the Raymond Loewy Corporation/ executed by Advance Design, Inc.

Planting boxes: blond-wood troughs/ brushed-brass pipe legs/ designed by the Raymond Loewy Corporation/ executed by Ebner & Raible, 319 E. 64 St., New York, N. Y.

Louver screens: designed by The Raymond Loewy Corporation/ executed by Ebner & Raible,

Draperies: "Busy Bye Ways"/ designed by Ruth Adler/ three-value green on light ground/ Creative Looms, Inc., 210 E. 51 St., New York, N. Y.

Fluorescent lighting: Ruby Philite Corp., 32-02 Queens Blvd., Long Island City, N. Y.

Flooring: green textured asphalt tile/ Tile-Tex Division of the Flintkote Co., 630 Fifth Ave., New York, N. Y.

Ceiling: "Softone" acoustical tile/ American Acoustics, Inc., Keyport, N. J.

Windows: "Solex" plate glass, heat-absorbing/ Pittsburgh Plate Glass Co., 2108-A Grant Bldg., Pittsburgh, Pa.

p/a interior design data

employee facilities

location | International Minerals & Chemical Corp., Bartow, Florida

architects | Robert Law Weed & Assoc.

data

Upholstered armchairs and settees: #3001 #3003/ aluminum frame/ coil-spring construction/ plastic upholstery/ Globe-Wernicke Co., 5029 Carthage Ave., Cincinnati, Ohio.

Aluminum chairs: varicolored plastic webbing/ Bird Mfg. Co., Clearwater, Fla.

Aluminum tables: Formica tops/ Bird Mfg. Co., Clearwater, Fla.

Walls: Brikcrete/ terra-cotta colored from salmon pink to deep red/ Brikcrete, Inc., Tampa, Fla.

Louvered concrete block: Munday block/ George Munday, 3655 NW 47 St., Miami, Fla.

Flooring: Crab Orchid, Tennessee stone flagging

Lighting: "Slim-Line" fluorescent/ Pittsburgh Mfg. Co.

Air Conditioning: Westinghouse/ Titus Airfoil Direction Grills/ Titus Mfg. Co., Waterloo, Iowa

Ceiling: "Porex" roof slabs, Porete Mfg. Co., North Arlington, N. J.

This particular lounge fills a very real need—and admirably. Most of the employes bring their lunches to work, because there is no suitable nearby place to eat. A terrace and an air-conditioned lounge, apart from the busy workings of the organization, give the employes a pleasant, comfortable resting place where they may enjoy the out-of-doors. Normally, the terrace (which is semi-enclosed), is ideal, because the entire wall is louvered concrete block which gives privacy from the street, but ventilation in the direction of the prevailing wind.

The inner area needs no draperies because the surrounding grounds are shady, noise is absorbed by an acoustical ceiling, and Nature supplies the decoration. *Photo: Jack Holmes*

data

Sofa: #37/ clear birch, natural finish legs/ 78" x 33½" x 31"/ 8½ yards to cover/ app. retail $270/ Knoll Associates, Inc., 575 Madison Ave., New York, N. Y.

Arm chair: #35/ clear birch, natural finish legs/ 29" x 33½" x 31"/ 4½ yds. to cover/ app. retail $168/ Knoll.

Wood-frame chair: clear birch, natural finish/ upholstery, foam rubber and cotton felt, no-sag springs/ 23½" x 29½" x 29½"/ 2½ yds. to cover/ app. retail $96/ Knoll.

Webbed chair: #652W/ clear birch, natural finish/ 24" x 28" x 29½"/ cotton or plastic webbing, available in brown, green, red, gray, black and white, white, yellow/ app. retail $48/ Knoll.

Side chairs: clear birch, natural finish/ 17½" x 21" x 30½" high/ ½ yard to cover/ app. retail $33/ Knoll.

Stacking tables: #106/ birch/ black or white Formica tops/ Knoll.

Drapery fabric: #K300/ "Apples"/ Stig Lindberg design/ app. retail $4.80 a yard/ Knoll.

Bamboo curtains: Bamboo & Rataan Works, Hoboken, N. J.

Masonite panels: executed by Knoll Planning Unit.

Flooring: Asphalt tile/ Tile-Tex Div. of The Flintkote Co., 630 Fifth Ave., New York, N. Y.

Acoustical ceiling: Metal Pan Acoustic, Armstrong Cork Co., Lancaster, Pa.

Lighting: Day-brite Lighting, Inc., 5411 Bulwer Ave., St. Louis, Mo.

Air Conditioning: Carrier Corp., Carrier Building, Syracuse, N. Y.

In the basement of this office building is a combination recreation and dining room. Screens in varying textures—Masonite, bamboo, and fabric—divide the areas, but permit flexibility in arrangement. All fabrics and materials have been carefully chosen to be extremely durable and practical, with minimum housekeeping necessary. Many of the fabrics are plastic, and the table tops are both cigarette-proof and stainproof.

Photos: Knoll Associates, Inc.

location	Auto-Owners Insurance Co., Lansing, Michigan
architects	Lee & Kenneth Black
interior designers	Knoll Associates, Inc.

Above: Engineers Club, Dallas, Texas, Architect: Everett Welch. Walls and upholstered furniture to be covered in Spatial Tomato Red Kalistron.

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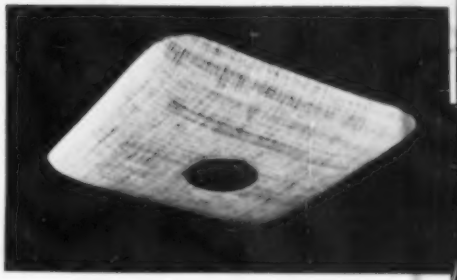
Living Room Furniture: designed by Paul McCobb/ **cocktail tables**/ vitrolite glass top, brass base/ 96" x 36"/ **retail:** $350/ 22" x 18"/ **retail:** $250/ **breakfront**/ 72" wide x 84" high/ fold screen door in base/ #8006 top/ **retail:** $550/ #8506B base/ **retail:** $400/ **end table**/ #8722/ 28" x 24" x 20" high/ **retail:** $60/ **high back lounge chairs**/ **retail:** $148 in muslin/ **B. G. Mesberg National Sales, 201 E. 57 St., New York, N.Y.**

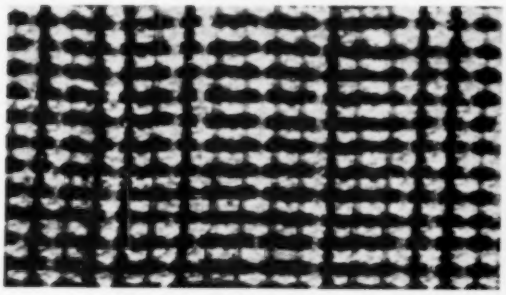
Ceiling Light Fixture: #4624/ linen-like textured glass with pewter disk/ diffuses light over large area/ 18" square, 4" deep/ **retail:** $20/ **Lightolier, Inc., 11 E. 36 St., New York, N.Y.**

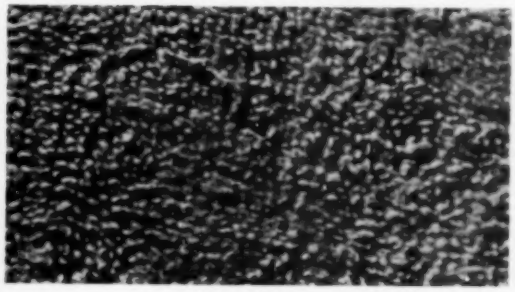


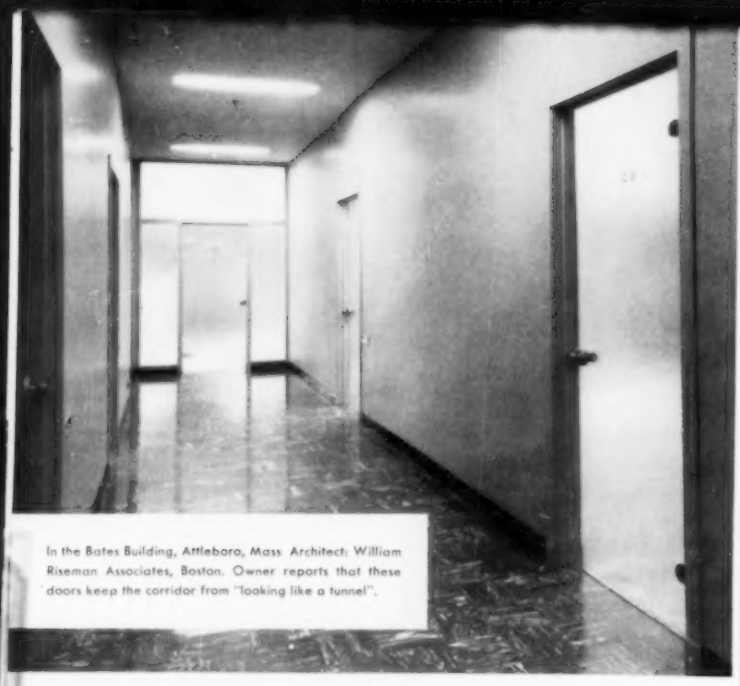
Side Chair: #512/ oak with Sunrise finish or Midnight Black lacquer legs, with or without cane/ **designed by Edward D. Stone,** Architect/ **retail:** $45/ **Fulbright Industries, P.O. Box 417, Fayetteville, Ark.**

Jute and Cotton Textile: designed by Jack Larsen/ has texture of tweed and looks handwoven/ available in taupe, gold, olive, orange, turquoise, and black-and-white/ width 54"/ **retail:** $13 a yd. **Thaibok Fabrics, Ltd., 37 E. 61 St., New York, N.Y.**

"Nobility" Rayon Carpeting: constructed of "Spunvis" viscose yarn/ 3/4" pile/ designed by John and Earline Brice/ wear and stain resistant/ can be had in 9' and 12' seamless widths and a large range of standard rug sizes/ available in 14 colors/ **retail:** $9.95 a sq. yd./ **Needle-tuft Rug Div. of Cabin Crafts, Inc., Dalton, Ga.**







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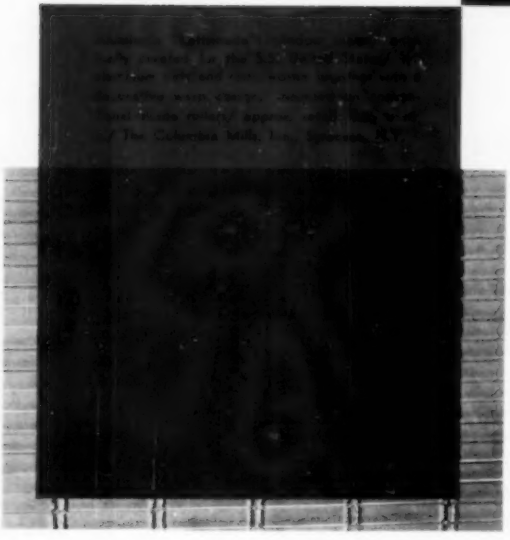

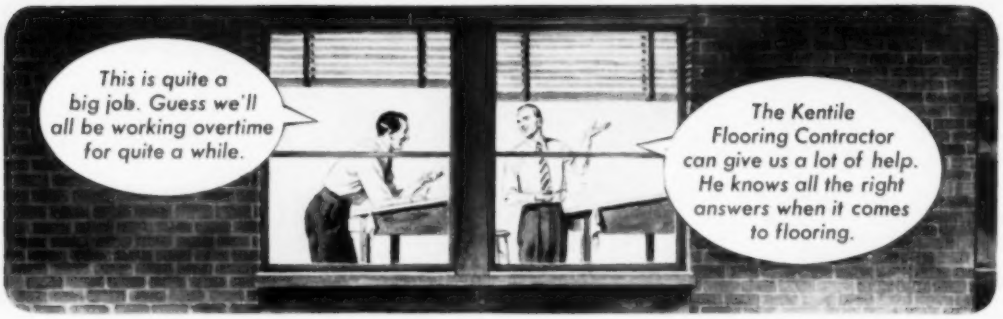
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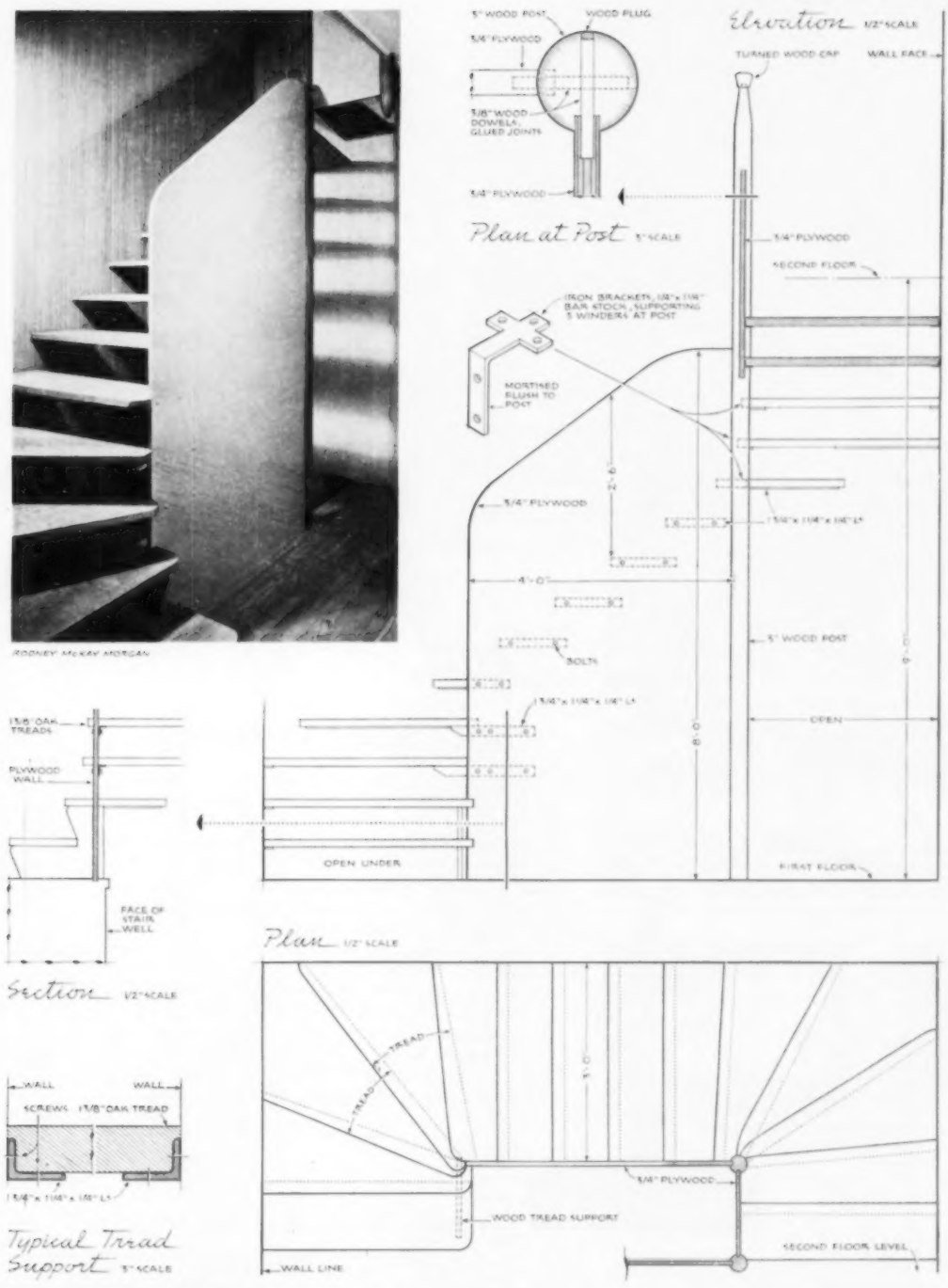
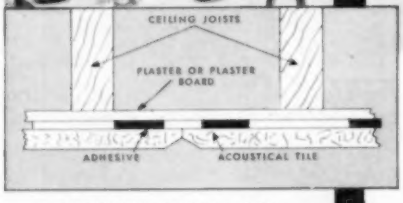
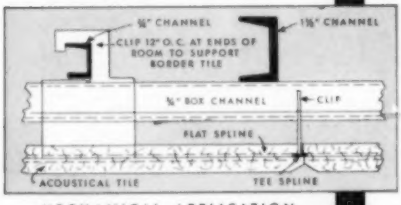


MANFRED PAYER RESIDENCE, Morristown, N. J.

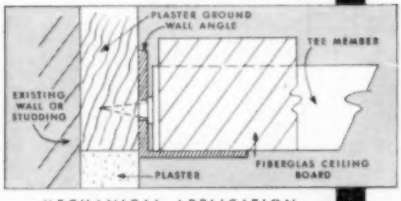
Ernst Payer, Architect



ADHESIVE APPLICATION



MECHANICAL APPLICATION
(TILE)



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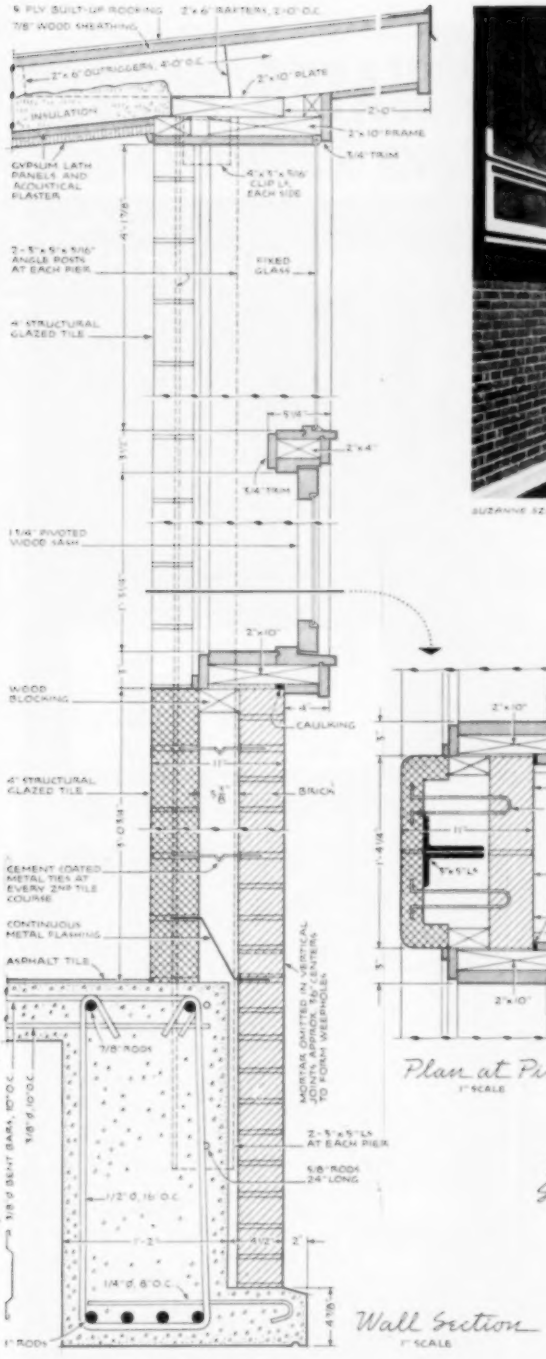

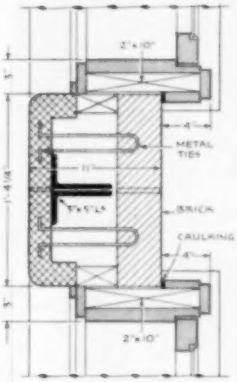

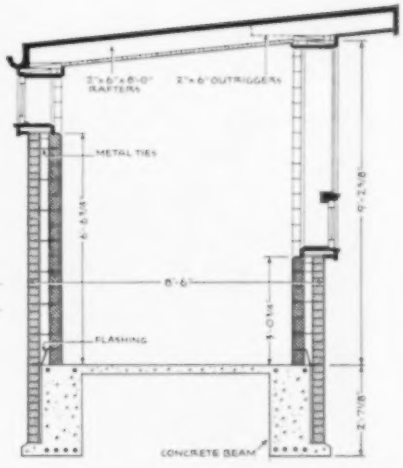

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Caleb Hornbostel, Architect

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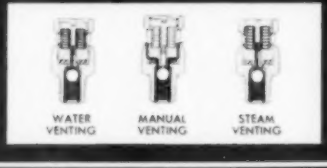

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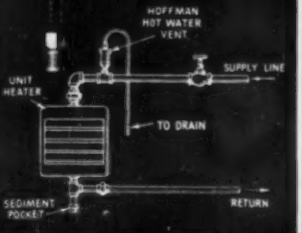
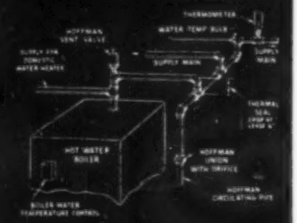


NO. 79 HOT WATER VENT



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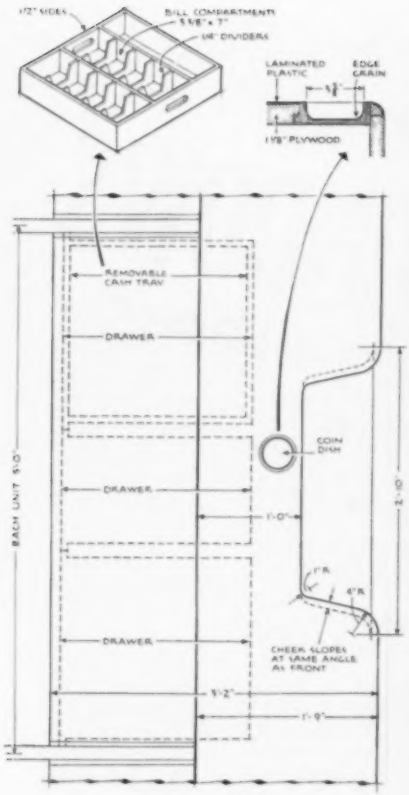
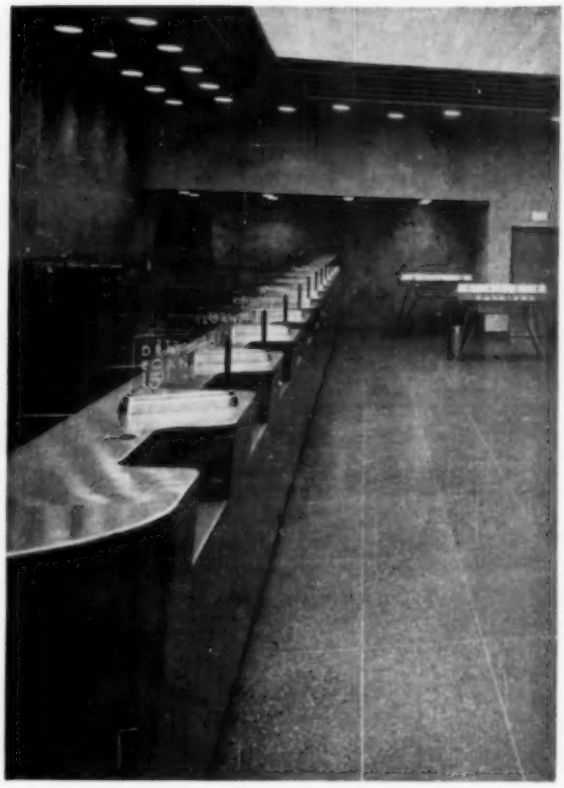


Plan 3/8" SCALE



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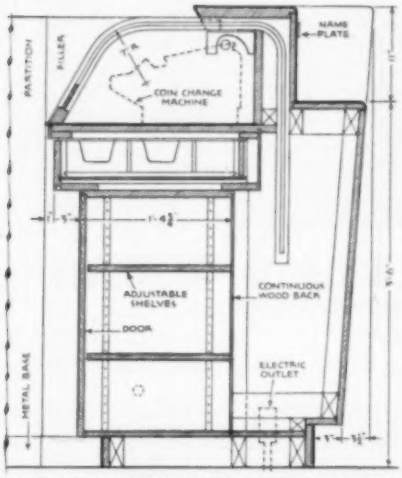
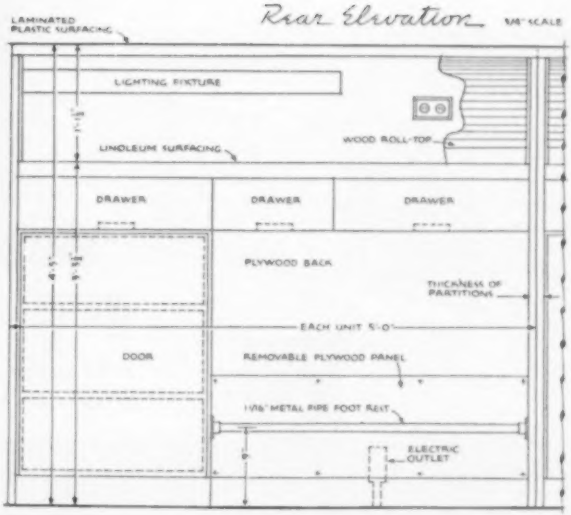
Section 3/4" SCALE



Rear Elevation 3/4" SCALE



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Conrad, Hays, Simpson & Ruth, Architects

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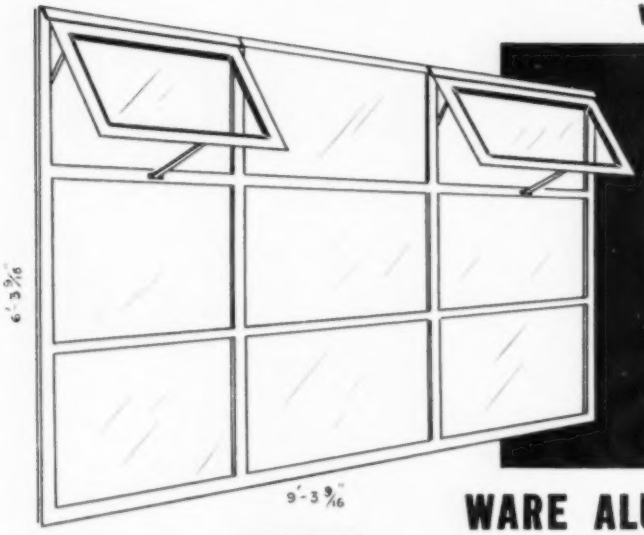

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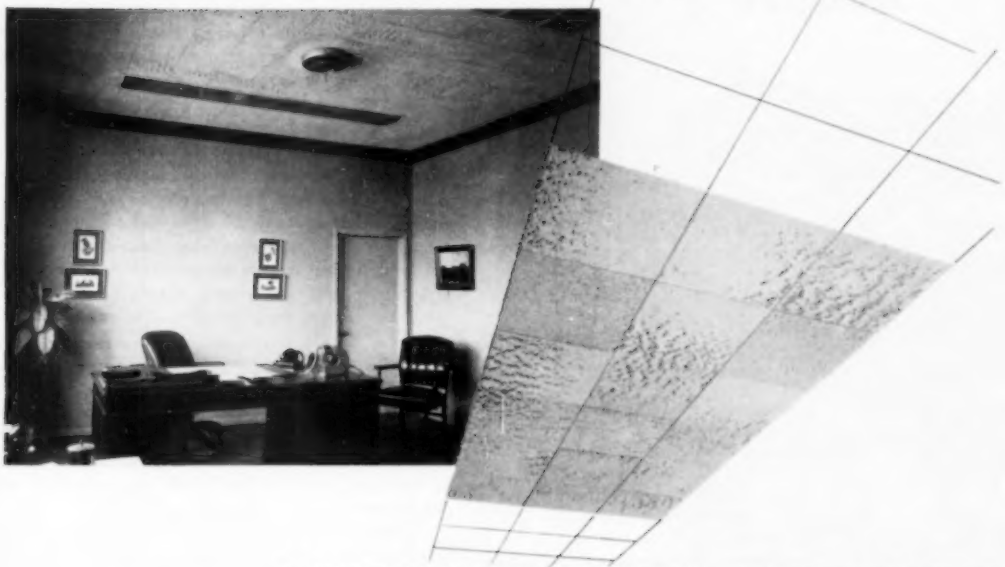

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LIGHT REFLECTION QUALITIES ▶ Its highly efficient light reflecting qualities make it completely adaptable to the indirect lighting methods used in the design of modern schools, hospitals, offices and public buildings.

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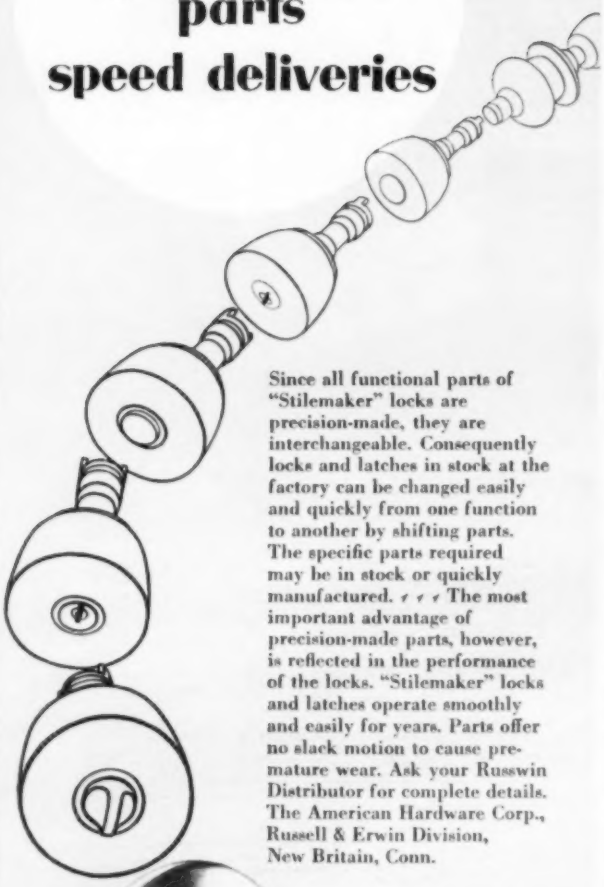

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RUSSWIN ®
"Stilemaker"

heat pump*

(Continued from page 104)

design thinking for heat pump installations

When a client says, "Warm my new house with a heat pump," the architect must begin at once to orient his thinking toward the meeting of several special material and arrangement requirements.

First, appreciation is needed of the comparatively low heating temperatures with which the house will be heated. Warm air emerging from grilles will range from 95 F to 110 F, and these temperatures obviously are not favorable to the rapid warming up of a cold structure. Heat stored in the building materials, therefore, should be maintained and augmented as the heating season waxes colder; the hours of operation must be increased and interruptions are to be avoided if continuity of comfort is to be maintained.

Second, realizing that heat loss is not easily recovered, the structure must be designed for heat tightness. This means providing insulation for the ground floor as well as for the walls and ceiling. It means double-glass windows, storm doors, and a thorough job of weatherstripping. In fact, heat conservation can be so critical that an apparently insignificant item, such as insulating the return air ducts, can change an uncomfortable complainer into a smug eulogizer. This writer has seen it happen.

Third, although the heat pump is a summer cooling system, the winter heating load determines the size of the plant. For example, 5 tons of calculated cooling is easily delivered by a system that will not warm the same building adequately in winter. If we install a 5-ton plant, we shall be obliged to augment its heat production on extra-cold days by resistance heaters or some other source of supplementary heat.

The reason for this apparent discrepancy of capacity is found in the simple fact of there being wide differences between the inside-outside temperatures of winter and summer operation. In summer, the machine must produce an inside-outside differential of 15 to 20 degrees maximum; in winter, zero outdoors calls for 70 F to 75 F, indoors. And whatever the differential happens to be, we must meet it with a constant-speed, fixed-volume compressor.

In short, we must design the system with heating as our basic objective; summer cooling is a pleasant bonus.

sizes and capacities of package units

Since we must locate the heat pump in some part of the house, the following tables of dimensions and weights will be helpful in early planning. These dimensions vary with equipment from different manufacturers, just as any other form of heating equipment varies, and final decisions on location should be based on accurate catalogue information (*see Tables IV and V*). Tables on air and water capacities also provide useful data (*Tables VI and VII*).

how much does a heat pump cost to buy?

The answer to the above question: more than a conventional heating system of equal capacity; about the same or a little less

* This is a continuation of Robert H. Emerick's discussion beginning on page 101.

than a conventional heating system plus a summer mechanical cooling system.

A 10-ton system installed during the past year cost the owner about $4500 for the heat pump cabinet and its controls; the wells for water supply and dry wells for water disposal added approximately $800 to his total investment.

The current price for a 5-ton, water-source unit is approximately $3000, installed. The water-supplying equipment, such as pumps, wells, disposal facilities, involves another $100 to $400 of outlay, depending on the complexities encountered.

The designs that harvest heat from the atmosphere, carry price tags approximately equal to those on the water-source units. For example, the asking price of a 3-ton job is about $2800; for a 5-ton installation, $3200; 10 tons around $4400. These quotations include the supplementary resistance heaters, and there is nothing else to buy—no pumps, no wells.

Ground-coil installations are the most expensive in many localities, involving as they do excavation, substantial weights of pipe, and extensive pipe fittings. The cabinet itself is equivalent to the water source arrangement, and pumps are needed to circulate the glycol through the coils.

By contrast, a five- or six-room house which would require a heat pump of from 5 to 7½ tons, depending on the heat tightness of the structure, can be heated by:

(a) A floor-type, space-heating furnace for a total installation cost of approximately $300.

(b) A warm-air duct system, oil- or gas-fired, for about $1500.

(c) A forced-circulation hot water system for $1800.

(d) A one-pipe steam system for $1900, more or less.

If we use any of these systems with a radiant-panel design, the investment will be a little higher, perhaps 10 percent.

However, and this is important to many people, the heat pump eliminates the need for a chimney, for fuel and ash handling, and substantially reduces fire hazards, since all temperatures are low. A true comparison of equivalent costs should consider these factors, and give each a valuation in dollars. To do this, is a responsibility of the architect or engineer.

Whether allowance should be made for summer cooling, depends on circumstances. Should the client consider summer cooling simply as a desirable by-product of the heating system, then no allowance is in order, or perhaps a limited one based on the client's evaluation of what the cooling function means to him. Conversely, if the client plans on summer cooling, regardless, full allowance is correct, but the comparison of costs must be made with the heat pump on one side, and a conventional heating system *plus* conventional cooling equipment on the other. This latter comparison is obviously most advantageous to the heat pump.

operating costs and maintenance

Operating costs vary with electric rates and the source of heat. Here are some typical reports:

(a) A 5-ton installation, air source, in a mid-Florida clothing store. Average winter monthly cost: $30.

(Continued on page 145)

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heat pump

(Continued from page 143)

(b) A 7½-ton installation, well-water heat, serving an office building near the Canadian border. Maximum monthly cost: $100.

(c) A city water system, 5-ton capacity in South Carolina, averages $55.86 per month for water, plus the usual electric charges.

(d) By comparison with (c), a 5-ton residential installation in South Carolina, using well water, shows $25 for an average winter month as the total for all costs.

We might observe here, that statements are made in public from time to time, crediting the heat pump with providing cheaper heating in 80 percent of its installations. The experience of this writer does not verify these statements; in fact, it shows quite the reverse, although conceivably in some sections of the country very low electric rates can result in cheap heating.

Maintenance tends to be higher for heat pump equipment than for conventional systems. A recurring trouble which probably can be eliminated with small difficulty by the designers, is the loss of lubricating oil from the compressor. When this happens, the compressor quickly burns out and must be replaced.

We encounter refrigerant leaks from time to time, apparently the result of poor workmanship, and possibly augmented by vibration. Another source of annoyance is observed in the automatic-control system. We should make allowance, however, for these difficulties, when we remember the machine runs both summer and winter; it is seldom without load. Conventional systems probably would show no better records under such continuing burdens.

These matters should be pointed out to clients when they say, "I want a heat pump." The design is not perfect, and the owner who is led to expect miracles may meet with disappointment. He should be told the worst of it, as well as the best, *before he buys one.*

summing up

Prospective users of heat pumps should understand these facts of a general nature:

(a) For economy of installation and operation, extra money must be provided in the building design for heat tightness.

(b) Money is saved by the elimination of a chimney and by escaping the need for fuel-handling equipment.

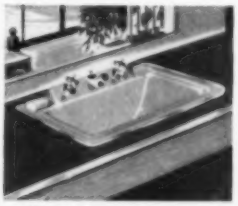
(c) A heat pump installation is practical, even if electricity is not available. One standard manufacturer catalogues units powered by gasoline engines.

(d) Installation costs, operating costs, and maintenance troubles may be less favorable than with conventional equipment. Dependability of operation is not viewed by this writer as being equal to conventional systems.

(e) Since working temperatures are low, interruptions of service for any substantial period are followed by slow heat make-up, with resultant dislocations of comfort.

(f) The ultimate selection of any heat source, or combination of heat sources, must be predicated on a thorough evaluation of all contributing factors. Neither the air, the earth, nor the waters under the earth, is best suited to all local conditions.

New fixtures for BATHROOMS of character



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VIEWS

(Continued from page 9)

tion and layout of 23A (Le Corbusier's design) is not maintained.

After this history of troubles, UNESCO has chosen a different method in undertaking the erection of its new headquarters in Paris. At present, as is well-known, UNESCO is housed in a former palace-hotel on the avenue Kleber. In December, 1951, a single architect was invited to make a preliminary sketch for the new headquarters. He was assigned a most unfavorable site on a half-circle just behind J.-A. Gabriel's Ecole Militaire (built 1751-82) on the axis of the Eiffel Tower. Here was made available a large slice that had been cut out from the almost completely built-up half-circle. Even the greatest architect would not have been able to design a decent building in the midst of this mosaic!

A jury was selected from lists supplied by the two international organizations of architects (The International Union of Architects and the International Congresses of Modern Architecture). This jury consisted of Walter Gropius (U. S. A.) Chairman, Lucio Costa (Brazil), Le Corbusier (France), Sven Markelius (Sweden), and Ernesto Rogers (Italy). They met in Paris in May, 1952. The Jury did not restrict itself to making the usual professional criticisms of the projects laid before them; they attacked the problem of the UNESCO headquarters in its entirety. The first result was that they came to the unanimous conclusion that the proposed building site was absolutely inadequate for the headquarters of a world-wide cultural organization. They spared no energy in making this clear, not only to the client but also to the donors of the site—the City of Paris and the French Republic. After careful investigation, a site was discovered on the fringe of the Bois de Boulogne, about five minutes by car from the Arc de Triomphe. The City of Paris agreed to grant this to UNESCO. This location, with the Bois de Boulogne before it and the City of Paris behind, is the most ideal building site that a contemporary architect could desire for the erection of a great edifice of an unusual nature.

The Jury felt it necessary to reject the preliminary scheme, because it did not fulfil present-day requirements for a building of this stature. Again the question arose: who should be the architect? It appeared natural, in this situation, to entrust the building to Le Corbusier, and this was the unanimous recommendation of his colleagues of the Jury. However their recommendation was rejected by UNESCO on grounds of professional ethics.

(Continued on page 148)

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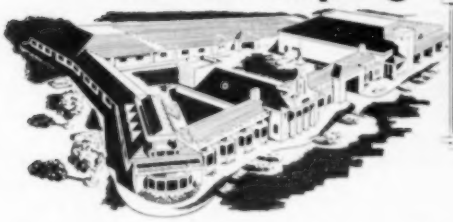

Lakewood Center

QUIET

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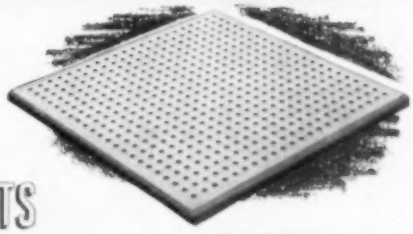

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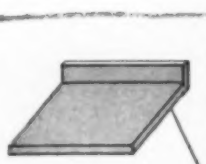
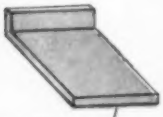
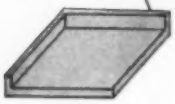


Countertops 25" wide, with 4" backs 1" thick, in these lengths: 24", 30", 36".



Countertops 25" wide, with 4" backs 1" thick, in these lengths: 15", 18", 21".



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VIEWS

(Continued from page 146)

Now UNESCO searched the lists supplied by U. I. A. and C. I. A. M. for two architects and an engineer and in July, 1952, Marcel Breuer (New York), Bernard H. Zehrfuss (Tunis-Paris), and Luigi Nervi (Rome) were assigned the task. Marcel Breuer, as is well-known, belongs to the younger generation of contemporary architects, and it is important that this generation is now being offered the possibility of displaying its capabilities in so difficult a problem. Bernard Zehrfuss is best known for his buildings in the French Colonies. And the engineer, Luigi Nervi, whose genius approaches that of Maillart and Freysinnet, has the great advantage that on his buildings and huge airplane hangars he has been accustomed to working closely with architects. Drawings for the headquarters had to be ready by mid-September, so that they could be printed and distributed before the meeting of the General Conference of UNESCO in November.

How will things work out this time after all the dismal experience of the past? No definite prediction can be made. The auspices are more favorable than ever before, though it is already certain that the building program outlined by UNESCO is far too large for the funds at present available. Also, one can have no idea of the attitude that will be adopted by the General Conference of UNESCO in November, in whose hands will lie the final decision. And after the experiences of Geneva and New York it is as well not to expect too much! It is a good sign that from the start the new team has felt the need of working in close contact with the Jury (whose members retain their positions). Another very important factor is that the three partners share a similar outlook — which is indeed the first requirement for real teamwork.

Up to now, the outcome can be regarded as a victory for the contemporary approach, so that perhaps this time it really does lie in the hands of the architects to produce a scheme equal to the possibilities of the building and the possibilities of the site. A brilliant solution could do much to lighten the oppressive atmosphere which now weighs upon architectural development in so many countries.

elected

NEW HAMPSHIRE CHAPTER, A.I.A., re-elected EUGENE MAGENAU, Concord, as president at the 4th annual chapter meeting. This was also a joint meeting of architects, engineers, and contractors.

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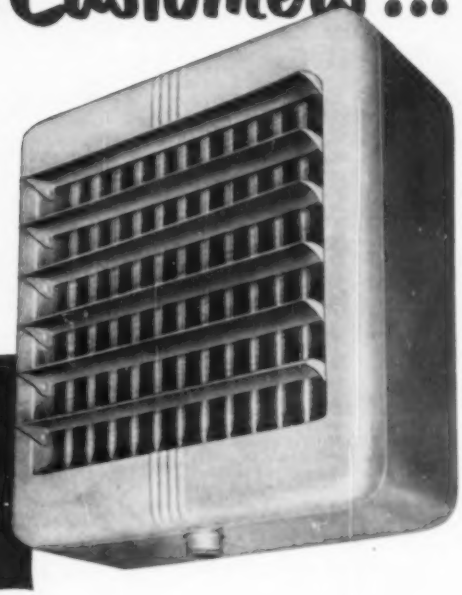

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Children and The City. Olga Adams. Sponsored by Michael Reese Hospital Planning Staff, 29 & Ellis Ave., Chicago 16, Ill., 1952. 29 pp., illus., $1

How to Plan a House. Gilbert Townsend, and J. Ralph Dalzell, American Technical Society, 848 E. 58 St., Chicago 37, Ill., 1952. 584 pp., illus., $5.95

Mexico's Modern Architecture. I. E. Myers. Architectural Book Publishing Co., Inc., 112 W. 46 St., New York 36, N. Y., 1952. Illus., 264 pp., $12

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the contemporary arts

Art in Modern Architecture. *Eleanor Bittermann. Reinhold Publishing Corp., 330 W. 42 St., New York 36, N. Y., 1952. 178 pp., illus., $10*

This is a well designed book in which the author endeavors by words and pictures to establish the level of artistic competence in America and to explain the significance of what is happening to the plastic arts at this particular moment in our architecrural history. Mrs. Bittermann appraises the place that art and ornament hold in the hearts of men and optimistically suggests that Architecture, traditionally the mother of all visual arts, may again and with renewed concern drape itself with the paraments of pure artistic creation to win back some if its age-old charm (somewhat battered by the functional revolution). It is encouraging to see fresh proof that through architecture the creative fruits of a good society may be enjoyed by all people, that Art is a living, ever-changing experience which belongs in the market place as well as in the museum; and that new conditions, new techniques, and new materials can all be grist to the creative mill.

If the illustrations cannot be said to constitute yet the dawn of a new Golden Age, they show nevertheless the seriousness of the contemporary artist, a seriousness which is in sharp contrast to the imitative and superficial efforts of the artists of only a few generations ago. The modern artist seems to understand again what function art has in architecture, and he is slowly and painfully attempting to find his way through his own discipline to a high standard of performance. Perhaps it may yet be necessary to have a great many works of art before we can have good art at all, but we know that good art will soon invite more of it. The fact that the government is now willing to spend even a small percentage of the cost of a public building for works of art is encouraging. We are learning that integration of art and architecture to be successful must come at a very early stage.

I believe that this book can have a very great influence, because it communicates an important message at a crucial period of our development as a nation—it invites not only architects and artists, but all interested laymen, to cultivate and protect the seedlings

(Continued on page 158)

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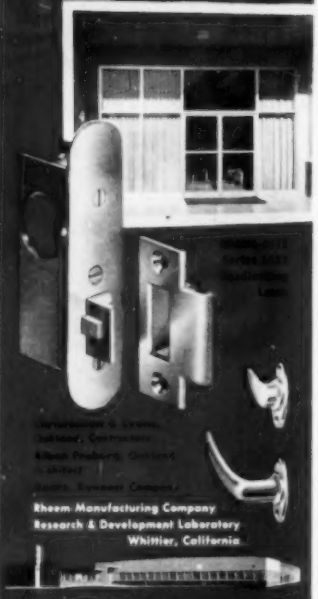

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REVIEWS

(Continued from page 150)

of our creative efforts from the cold climate of indifference. It is important because it is increasingly becoming apparent that only through a spiritual and cultural growth will America be able to retain the advantage it has gained over the world through mass production and armed strength.

PIETRO BELLUSCHI

sources listed

August Perret: A Partial Bibliography. *Compiled by George E. Pettengill. American Institute of Architects, 1741 New York Ave., N. W., Washington, D. C. 17 pp. $1*

The A.I.A.'s librarian, George Pettengill, compiled this bibliography primarily to secure data about the sources of information on August Perret, in connection with the award by the A.I.A. of the Gold Medal, its highest honor, to M. Perret. Though the list is neither complete nor selective, it contains most, if not all, of the important references to this eminent French architect, whose design of buildings in reinforced concrete has brought him international recognition in the field. These references have been arranged in general groups, as follows: Writings of M. Perret; Book Refences; Biography and Criticism; Honors; Reinforced Concrete; Miscellany; Major Works Individually by Date; Other Buildings; Projects. E. T.

characteristics of trees

Painting Trees & Landscapes in Watercolor. *Ted Kautzky, N. A. Reinhold Publishing Corporation, 330 W. 42 St., New York 36, N. Y., 1952. 112 pp., illus., 16 full color plates. $9.95*

To his widely admired previous books on drawing and watercoloring—*Pencil Pictures, Pencil Broadsides, and Ways With Watercolor*—Ted Kautzky, well known artist and renderer, now adds this handsomely illustrated volume. Basic factors such as selection of papers, brushes, and palette; organization of the composition; and arrangement of values are again considered here in summary chapters. But the bulk of the book concerns itself with minute examination of the problems of painting elements of the landscape—trees, roads, and

(Continued on page 154)

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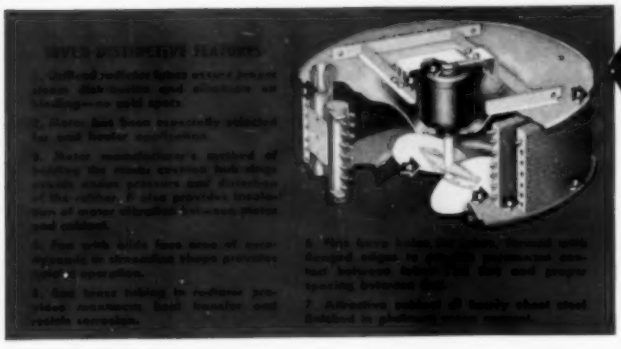

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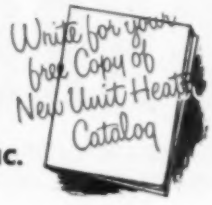

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Illustration shows driveway entrance on field level, lighted with Garcy recessed troffers and Garcy surface mounted cylindrical plastic-enclosed units to provide light-adaptation area for drivers coming into building from daylight.

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Illustration shows drive-in automobile area (banking) lighted with Garcy Slimline fixtures No. 7449-2 (background) with two 96" 430 ma. lamps, and Garcy No. 7895 4' x 4' square fixtures (foreground), providing high light intensity for effective lighting of drive-in banking area.

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REVIEWS

(Continued from page 152)

puddles—and with the visual effects of fog and rain.

Beautifully illustrated chapters take the reader through the fundamentals of brush strokes that may be used—not the *only* ways, the author emphasizes—to produce credible facsimiles of foliage, branches, trunks, and groups of trees. Then ten chapters, that constitute more than half the volume, consider particular tree species in exhaustive detail—willows, evergreens, maples, birches, sycamores, palms, elms, oaks, poplars and aspens, and the Monterey cypress. In each of the chapters, the basic growth-shape of a variety is analyzed, followed by suggestions as to satisfactory methods of expressing the characteristic trunks, limbs, branches, and foliage. Supplementing these analyses are finished watercolors in which the particular trees under discussion are prominently featured. Here Kautzky takes pains to explain what papers were used, the palettes, the order in which the paintings were executed (illustrations at the half-way point are shown), and what brushes were used. The completed paintings are all reproduced in full color.

A concluding chapter offers ten pencil drafts, again involving the various tree types, as "practice subjects" for the experimenting artist to work out for himself.

For the amateur like this reviewer, there are a few recurrent instructions such as "keep the surface lively" and the brush strokes "spontaneous" that serve more to admonish than to inform. And, in my opinion, the finished paintings, which were all specially made for this book, are less lively than the black-and-white illustrations of brush strokes, individual trees, and partially finished watercolors.

Nonetheless, this is a painstaking and useful book. For anyone who has ever dabbled in watercolor painting, it is certain to provide the stimulus to try again. After a little practice, I find that even I can now put on 300-pound rag stock a few blobs that, my best friends tell me, do look a little like foliage.

G.A.S.

architects' rights

Legal Guide for Contractors, Architects and Engineers. *I. Vernon Werbin. McGraw-Hill Book Co., 330 W. 42 St., New York 35, N. Y. 374 pp., illus. $4.75*

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(Continued on page 156)

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REVIEWS

(Continued from page 154)

gation—and licensed engineer, the author explains in these pages the rights in litigation of contract, what steps must be taken to preserve these rights, and how to prepare contracts that will not cause trouble. He has selected 83 typical cases of contract litigation involving construction, engineering, and architectural contracts handed down by United States courts. Pertinent contract provisions, the court's decision, and the basis for the decision, are given for each of the 83 cases.

Though written for nonlegal-minded layman, the Guide should also be helpful to lawyers who are interested in this field, since each principal of law set forth here is sustained by a case citation. A detailed index of every subject covered completes the book. E. T.

following the firemen

As You Pass By. *Kenneth Holcomb Dunshee. Hastings House, 41 E. 50 St., New York 22, N.Y., 1952. 270 pp., appendix, over 600 illus., color and black-and-white, including maps. $10*

There have been many books written about the early days of New York, but this one is unique in its approach. Here is a colorful and romantic story of the old days of Manhattan, as seen through "the fire laddies' eyes." Surely, no group of citizens knew more about places and people and the daily activity of the city than its volunteer firemen, many of whom were distinguished members of the community. In these days of taking everything for granted, few realize the importance of the fire-fighters in the early political and social life of the city. Since the volunteers were well acquainted with all the highways and byways, the real character and makeup of the city can be recaptured by following their route.

Unique though the approach may be—and whether one is especially interested in the early fire companies—this is a book which will appeal to all New Yorkers, as well as to all lovers of Americana. In it, by text and profuse illustrations including the splendid "then and now" drawings by E. P. Chrystie, are brought alive interesting people and places, the fabulous happenings, and just plain, ordinary days of living in a bygone era. The author, who is curator of the H. V. Smith Museum of the Home Insurance Company (which houses the greatest collection of fire memorabilia in the country), has been most painstaking

(Continued on page 158)

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REVIEWS

(Continued from page 156)

in the vast amount of research he has done over a period of years. He has uncovered many sources of information that have never before been used in any books about New York—diaries, journals, minute books, and archives of the old fire companies; old prints and photographs. From the great wealth of information he has assembled, he has skillfully reconstructed the lives and adventures of the city's citizens and added many details to the existing knowledge of old New York. His efforts are the result of an intense civic pride and although the romantic anecdotes and hitherto unknown facts are recounted with humor and a fondness for the subject, Dunshee's book contributes much to the city's history which makes for fascinating reading. Of particular interest is the Directory of Forgotten Streets, found in the Appendix.

It might be somewhat carping to think of omissions in so comprehensive a book, but because of the particular approach and all the material about the early fire companies, one wonders why there isn't more about the lively Dalmatian dogs that were so much a part of the scene. An insignificant point, perhaps, but only two mentions of dogs are made: one about a Newfoundland called Major, that "served" with the Mechanics Hose Company; the other, a black-and-white dog named Rollo (ancestry unrecorded), that belonged to Frederick Van Wyck—himself a writer about New York—when he was a youthful runner with the Metamora Hose.

Although it might not have been any special intention of the author's, Dunshee's book is of singular significance at the moment, in awakening New Yorkers to the need of preserving certain features of the city. Other cities—such as New Orleans, Boston, and Philadelphia—still can boast many of their old houses, historic buildings, and landmarks. Unfortunately, New York has built over its past, torn it down, and continues to do so. As one reads this book, he cannot but feel that every effort should be made to support the activities of the Municipal Art Society and other organizations that are doing useful and important work toward preserving characteristic architecture of the city.

FRANK A. WRENSCH

(Continued on page 160)

This Sloane Koroseal Tile Supreme floor provides low-cost, care-free service, beauty and quiet comfort in the display room of the Peoples Gas, Light and Coke Co., Chicago, Illinois.

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REVIEWS

(Continued from page 158)

code interpretation

Code Manual for the State Building Construction Code. *State Building Code Commission, 1740 Broadway, New York, N.Y. 300 pp., illus. $2*

The State Building Code Commission of New York has issued a manual to assist building officials, architects, engineers, builders, and others in the interpretation, application, and enforcement of the State Building Construction Code. The primary significance of this manual lies in the fact that it describes methods and materials acceptable as meeting State Code requirements, without prescribing their use. All techniques, equipment, and products meeting the performance requirements are acceptable, whether they are described or illustrated in the manual. Since the Commission's technical staff will continue to study construction materials and methods, the manual has been published in loose-leaf form to permit insertion of new data pages supplementing or superseding the ones in the original book.

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picture of a code

The National Plumbing Code Illustrated. *Written and published by Vincent T. Manas, 4513 Potomac Ave., N.W., Washington 7, D.C. Illus., 200 pp.*

About a year or so ago, a committee representing the federal government plus numerous affected groups such as the National Association of Master Plumbers, the American Society of Mechanical Engineers, the U.S. Public Health Service, and many others, came out with a new National Plumbing Code which has since been adopted by some 200 communities in the United States. The purpose of this book is to translate the technical and often legalistic language of the printed Code into mechanical design and construction of a plumbing system, for the benefit of engineers, contractors, manufacturers, and others. The author has, almost literally, drawn a picture of the National Plumbing Code, by illustrating it with about 200 simple drawings so that the Code's meaning can be crystal-clear to everyone. E. T.

fixture standards

Enameled Cast-Iron Plumbing Fixtures, Commercial Standard CS77-51. *Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 39 pp., illus. 15 cents*

Superseding an older standard of 1948, this newest edition provides minimum standard specifications, definitions, inspection rules, types, and sizes of standard items, and test methods for enameled, cast-iron plumbing fixtures for the guidance of manufacturers, distributors, and buyers of these products. Minimum requirements include material, thickness, warpage, enameling, acid resistance, inspection rules, and marking. A list of associations, firms, and other organizations which have accepted this standard for use as far as practicable, is appended at the end. E. T.

(Continued on page 162)

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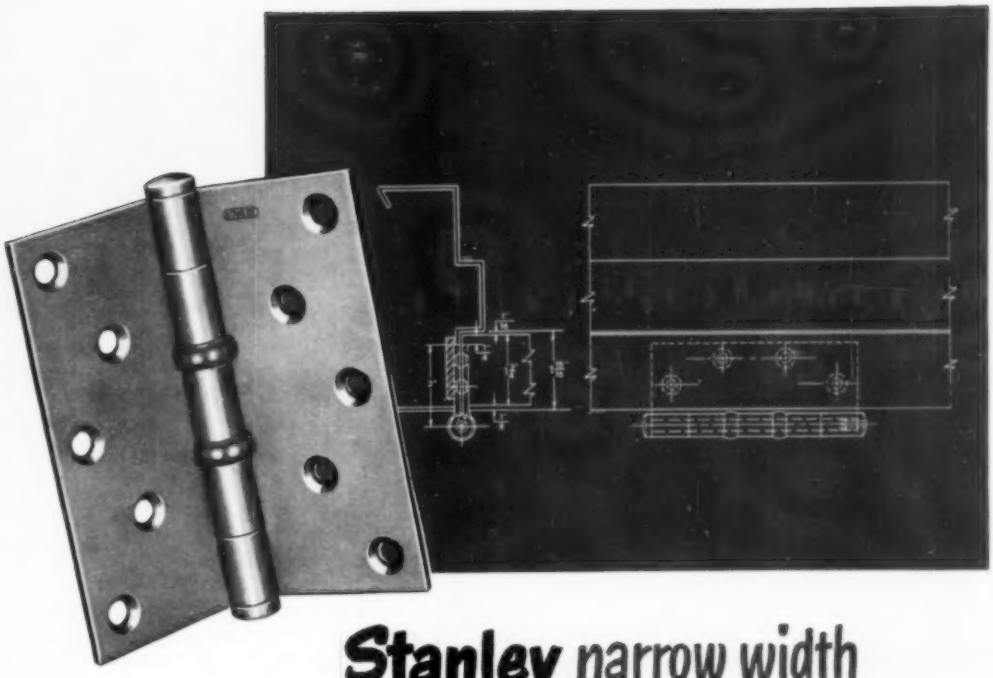

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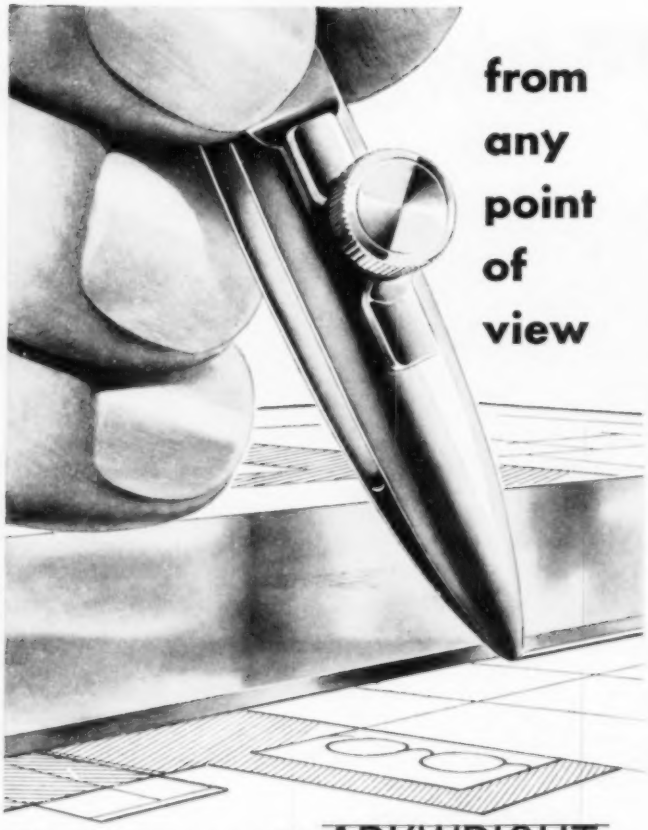

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REVIEWS

(Continued from page 160)

canadian farm houses

Farm House Remodeling. *Planning Research Centre, School of Architecture, University of Manitoba, Winnipeg, Manitoba, Canada. 1952. Illus., 56 pp.*

Farm House Planning. *Planning Research Centre, School of Architecture, University of Manitoba, Winnipeg, Manitoba, Canada. 1952. Illus., 88 pp.*

Although the material in these two booklets is based on surveys in western Canadian provinces, they are intended to assist all those who plan to build or to modernize farm homes from the standpoint of utility and comfort. Photographs and drawings illustrate ways of overcoming the more common problems to be found in construction and repair. A number of fairly varied case examples are represented.

E. T.

NOTICES

research grants at M.I.T.

The F. W. WAKEFIELD BRASS CO., Vermilion, Ohio, has established a research fund of $10,000 at the MASSACHUSETTS INSTITUTE OF TECHNOLOGY and granted a student fellowship of $2650 to CASE INSTITUTE OF TECHNOLOGY.

The M.I.T. fund is to the School of Architecture for study of all environmental factors contributing to the process of seeing.

The Case fellowship is for research in thermal environment and the production of a thesis covering certain phases of air conditioning and radiation.

engineering research

Appointment of DONALD R. GUTHRIE, as Executive Engineer in charge of engineering research was announced by MINNESOTA MINING & MANUFACTURING CO. He will organize an engineering research group consisting of three sections: chemical engineering, machine development and instrument engineering. The purpose of the new group is to provide specialized engineering assistance to engineers in the company's various product divisions.

(Continued on page 164)

AUTOMOBILE CLUB BUILDING
New York, N. Y.
Julian von der Lancken—*Architect*
Rheinstein Construction Co., Inc., *Builder*
Refacing to the Broadway and 62nd Street fronts is 2" thick architectural terra cotta in units 18" x 36" with rusticated vertical joints. Field color is a soft gray glaze. Horizontal rusticated panels are a harmonizing blue.

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CORPORATION
10 EAST 40th STREET, NEW YORK 16, N. Y.
Plants at Perth Amboy and South Amboy, N. J.

Remarkable primer takes the wet out of wet plaster . . . Newly plastered surfaces primed and ready for painting in 24 hours!

Contractor uses it . . . overcomes unavoidable delays, meets rush deadline!

Plastering of ceiling was not yet finished . . . Newly plastered ceilings and walls were still wet . . .

But Nicholas Kramer & Sons, contractor, had got their orders: *Scaffolding had to come down by the following Wednesday!*

What if it were raining and sleeting outside? What if the Our Lady Queen of Peace R.C. Church, Maywood, N. J., had no windows, no heat yet? What if barely a week remained in which to do the job? *This schedule had to be met!*

Did Kramer & Sons meet it? They did! Here's how . . .

Wet Surfaces Quickly Made Ready for Paint

Starting late that gloomy October Thursday, Kramer & Sons flooded still wet walls and ceilings with a remarkable primer that solves the problem of painting over wet, new plaster.

Its name? *Hydroban!*

Even ceiling not plastered until Friday noon was quickly readied for painting by flooding on *Hydroban* only 24 hours later!

All Sunday, this unusual primer penetrated the new, wet plaster, emulsifying with the salts and water. Efficiently, it absorbed moisture, increased plaster density and hardness, neutralized hot spots and made surfaces moisture-resistant.

By Monday morning, all newly plastered areas were primed and ready for paint!

Gives Perfect Results in 2 Year Test

Monday and Tuesday, painting proceeded without delay. Wednesday night the scaffolding came down—right on schedule, thanks to *Hydroban!*

Windows were not installed for another month. There was no heat until mid-December. Yet, today, two years from the date *Hydroban* was used, walls and ceilings are in perfect condition!

Hydroban has many other important interior and exterior uses for moisture control on all types of building materials. For further information, in New York phone ULster 5-4500 or mail coupon below.

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NOTICES

new courses

The School of Architecture, GEORGIA INSTITUTE OF TECHNOLOGY, announces a two-year graduate course in City Planning to be inaugurated in September under the direction of HOWARD K. MENHINICK, Regents' Professor of City Planning, formerly director of Regional Studies at TVA. This course, housed in the new million-dollar architecture building, will be limited to 20 students. Applications are now being received from those holding a bachelor's degree.

A new college course in home building leading to a degree will be available to students next fall through co-operation of the nation's home builders. The course, carrying a B.S. degree in Business Administration, will be offered by TRINITY UNIVERSITY, San Antonio, according to the National Association of Home Builders. The course will offer college training in the various subjects making up the business of home building.

new slide series

The HERBERT E. BUDEK COMPANY, INC., 55 Poplar Ave., Hackensack, N. J., will act as distributor for black-and-white filmstrips and slides based on the photographic archive of the MUSEUM OF MODERN ART LIBRARY, New York. Prices obtainable from the distributor.

The material will be offered in four editions: Edition A—single-frame filmstrips; Edition B—double-frame filmstrips for self-mounting of 2x2 slides; Edition C—glass-mounted 2x2 slides; and Edition D—glass-mounted 3¼x4 slides. Each strip or slide series will provide, in addition to 35 to 40 picture frames, a brief preface, essential captions, and a selected reading list.

Among titles to be offered are: M B 4—"MODERN ARCHITECTURE: The Development of Design in Space"; and M B 6—"INTERIOR DECORATION: Current Trends and Master Designers."

new addresses

A. EUGENE CELLAR, Architect, 502 Riverside Ave., Jacksonville, Fla.

JOHN LYON REID, A.I.A., Architect, 1069 Market St., San Francisco 3, Calif.

ISADORE ROSENFIELD, Architect and Hospital Consultant, announces the change of his office address to 45 W. 45 St., New York 36, N.Y.

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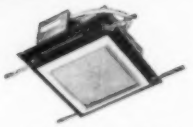
THE FINEST LINE FOR RESIDENTIAL AND COMMERCIAL INSTALLATION



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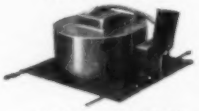

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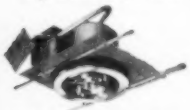

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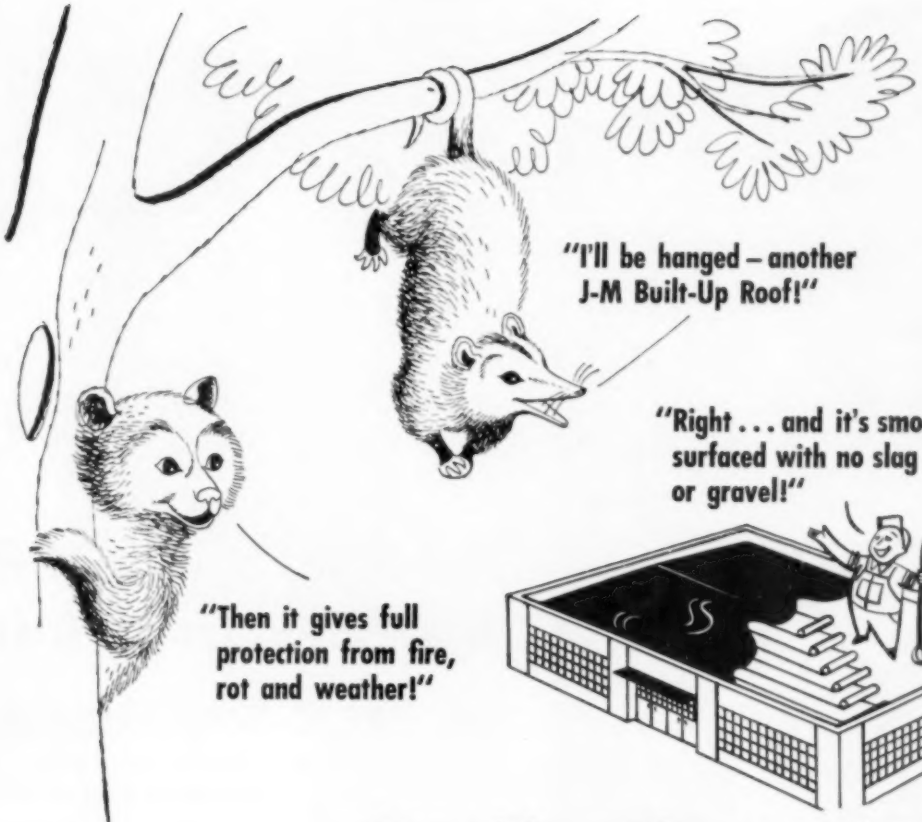
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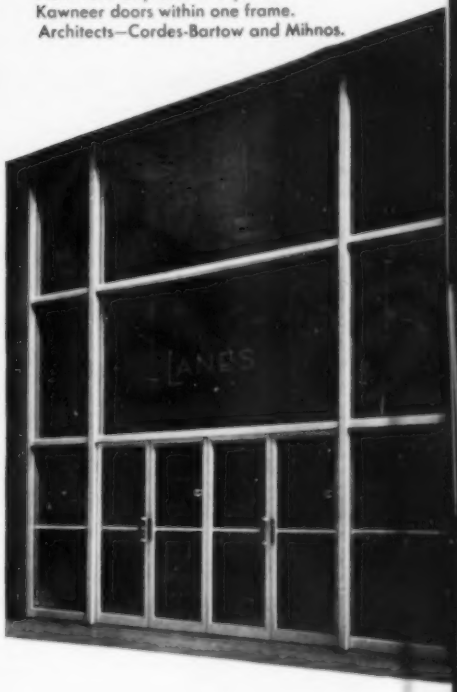
Esquire Coronet publications building in Boulder, Colorado. A striking treatment of an entrance unit featuring Kawneer doors and mullion construction. Architect—Ralph Stoetzel.

Lanes Department Store in New York City uses two pairs of Kawneer doors within one frame. Architects—Cordes-Bartow and Mihnos.



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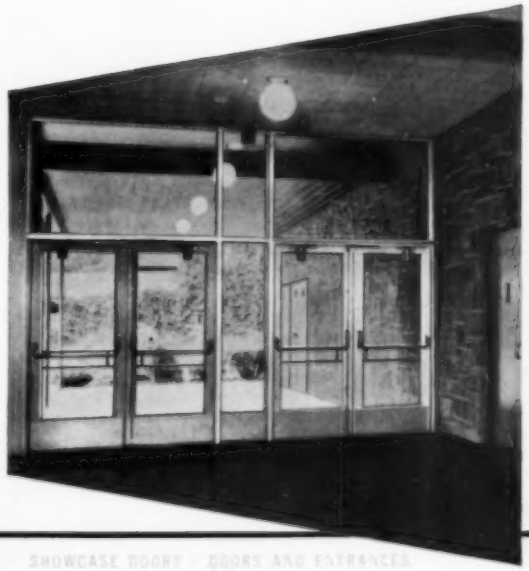
Transfiguration School in Tarrytown, New York, shows an excellent solution to an entrance problem that required panic exit devices. Architect—Robert A. Green.



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out of school

by Carl Feiss

"It is pathetic enough that a whitewashed castle, with turrets and things,—materials all ungenuine within and without, pretending to be what they are not,—should ever have been built in this otherwise honorable place, but it is much more pathetic to see this architectural falsehood undergoing restoration and perpetuation in our day, when it would have been so easy to let dynamite finish what a charitable fire began, and then devote this restoration-money to the building of something genuine."* "Castles and Culture," *Life on the Mississippi* by Mark Twain

"The next haouse to the saouth, ladies and gentlemen, was built by Mr. E. T. Stotesbury of Philadelphia. It has recently been bought by the Taown of Bahabah for a baout terminal for a new line to Nova Scotia." A cream-colored Grand Trianon hove into sight through the pines above the rockbound coast. I didn't have my history book, but I guessed Charles A. Platt after Stanford White, but maybe I was wrong, because the stucco Villa Medici from Lago Maggiore, just north and next door, may have been from those same drafting boards. It's quite confusing. Fortunately, no one got around to putting a German castle on that serene granite monolith, Mt. Cadillac.

I had just flown over Tuxedo Park, that recently incorporated village of incredible mansions, into which Democracy has just filtered. According to *The New York Times* of August 8, incorporating the village means that it gets certain privileges, such as passing local "blue" laws, issuing dog licenses, and enabling it to receive from the state $3 per person for general operating expenses. (Undoubtedly a necessary form of Socialism, even for so Republican a community, these days).

Over Tuxedo Park to Saranac Lake, from there into the White Mountains, and then to Mt. Desert Island, passing by and looking down upon the seats of the mighty in the wilderness. Right behind our cottage at Hull's Cove is the famous Pot and Kettle Club where at one time, according to our barker on the Frenchman's Bay excursion boat (seats sixty people for a three-hour cruise of the seaside mansions of Bar Harbor, at $2 a head), the small and exclusive membership controlled 82% of the wealth in the United States. The phenomenon of the great mansions of our coasts, from Bar Harbor and Newport to Palm Beach to Santa Barbara, and of our mountain resorts, from Ashville to Lenox to Colorado Springs, remains a historical wonder which, like the great English manor houses (of unquestionable authenticity), should and will continue to be a tourist attraction as long as they survive.

Of course, Veblen was right. It is hard to believe that these houses were not built to be viewed by us gawkers, touring in droves to see the sights. Otherwise, why build with such conspicuous ostentation? Otherwise, why build with such obvious inappropriateness to the

(Continued on page 170)

*Louisiana Capitol at Baton Rouge.

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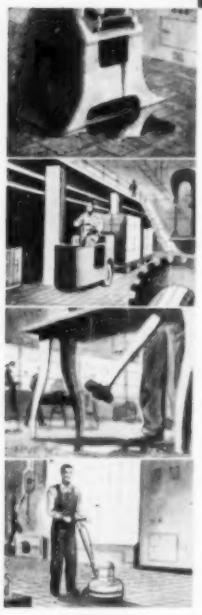

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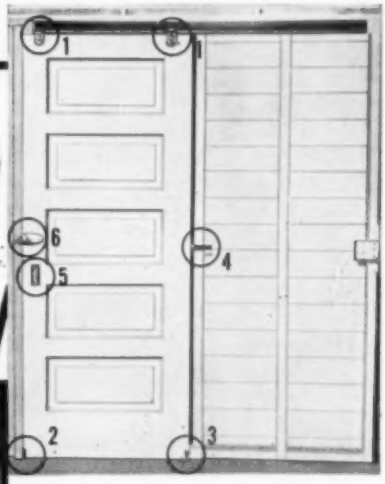

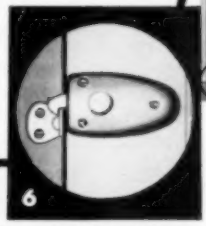

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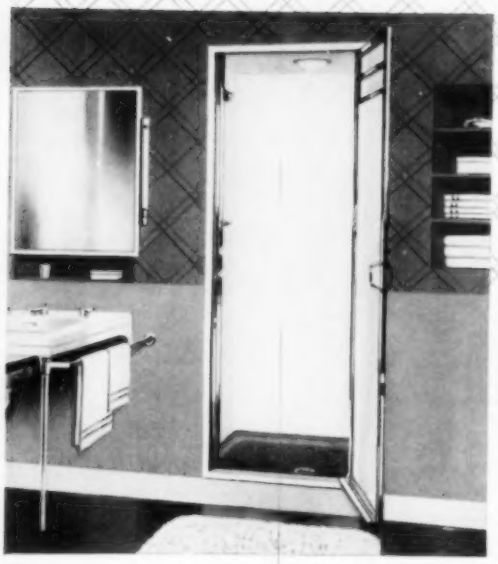

Illustrated: The CADET, a built-in Fiat Shower that does not look like steel, but becomes a beautiful part of the bathroom by concealing joint between wall and cabinet stiles.

See Sweets:

25g/11 Architectural

7b/11 Builders

or write for catalog and prices.

8% to 10% of the average home cost is in the plumbing contract—much of that goes into the bathroom! Now you can reduce that percentage and still deliver adequate and attractive bathing facilities by utilizing FIAT "package" showers. FIAT shower cabinets are designed to meet every architectural requirement, and always cost substantially less than built-on-the-job showers.

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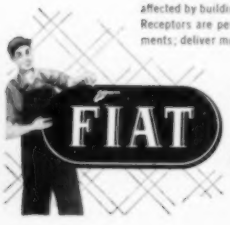

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out of school

(Continued from page 168)

site—the sea, the forest and the mountains? The architect, enoying his ability to compete with God's untutored esthetics, provides his client with the fruits of their mutual egotism. In so doing, he also provides a vicarious thrill to those of us who, as stepsisters to Cinderella, never get to marry the Prince and live in a Golden Castle.

The curious thing to me about these great houses is how ugly they are. The old drafting-board architects, with all the money in the world to waste, lacked two vital design faculties—one, the sense of three dimensions, which would have given their palaces and manors the proper sculptural aspect; the other, the inability to *land* their buildings. This latter deficiency results from a lack of sense of topography and site. The buildings hover just above the ground, not in a light and fantastic way, which could be beautiful, but in a heavy indecision, as though about to be dropped by a clumsy Djinn out of Aladdin's lamp on to the elaborate terraces and shrubbery designed by the most ingenious landscape architects to conceal the awkward gap between the house and the ground.

Be all that as it may, these are architectural concoctions to conjure with. As social concepts they are receding, with the days of many Scotch gardeners, uniformed chauffeurs, and limitless house staffs. They still exist, but are aging with the grand old ladies in the grand old automobiles one still sees on Sargeant Drive beside the beautiful fjord of Somes Sound at Northeast Harbor. What happens next is in the lap of also aging gods.

●

I was talking the matter over the other day with the Dean of the School of Architecture of Theleme, who was also on vacation here. We met at the Bar Harbor Laundromat, where I was delousing the children's blue jeans. He was staying at "Mon Repos," that beautiful house at Seal Cove. As we sat by the swirling waters, he confided to me that there were no longer laundresses at the big house, and that guests had to see to their own "blanchissage du fin." He is after all an old Beaux Arts man like me, and we talk the same language.

"What," I asked the Dean, "is going to be the design training of our boys as far as domestic architecture is concerned? Will it have to continue indefinitely in this present trend of minimal houses? Will they never again splurge into palaces for exiled rail-

out of school

(Continued from page 170)

road tycoons on rock-bound coasts? Will their imaginations never be taxed beyond the module for the miniscule?

"At Theleme," said the Dean, above the roar of the Surf* in the enameled boxes, "the matter is of serious debate among the design faculty. We see, on one hand, the requirements of our age; on the other, the loss of stimulus and excitement to the mind. Incidentally, we are also puzzled by this question of the module. Here on Mt. Desert Island we find that our forefathers were Gargantuas. Ceilings are fifteen feet high, bedrooms are a minimum of thirty by forty feet, windows rise six feet wide to a height of eleven feet. Now we design for a ceiling of six-feet-eight or perhaps to a maximum of seven-feet-two. Our master bedroom is nine by ten, with a double decker which just permits a body to squeeze between top mattress and ceiling. And yet, according to the latest statistics, our youths, stimulated by orange juice, breakfast foods, and lots of milk, are now averaging one and one-third inches more in height than our great-grandfathers. I have nightmares trying to figure how to fold an average six-feet-three basketball player into one of our prize-house packages. Maybe more frequent washing would shrink them—the basketball player, I'm thinking of, not the house—those could not be shrunk further.

"This is where the module problem arises. Le Corbusier has attempted through "Modulor" to invent a dimension based on the human figure. But the human figure is not only infinitely variable, but also it is apparently enlarging. While many of us attempt to reduce our horizontal dimension, our youngsters continue the vertical trend. Our architecture, being at present of horizontal design even for many of our vertical buildings, continues to clamp the lid on us. Sometimes I wonder if we shouldn't return to the Gothic. I'm getting a claustrophobia which no picture window can mitigate. I feel like a worm looking out from under a fallen log."

●

The Dean had wandered far from the subject, as is a Dean's prerogative, when on vacation. He changed the subject still further by asking,

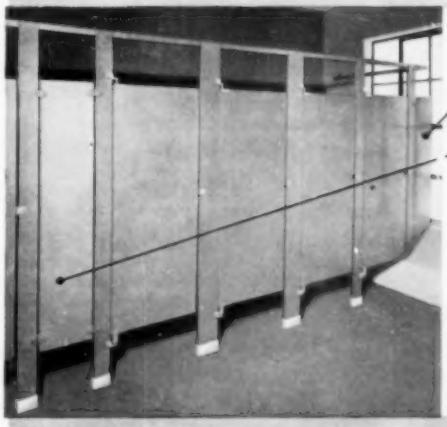
"When are you coming to Theleme as a visiting critic? You have been writing about design training for a long time. In fact, I challenge you to try out your theories in prac-

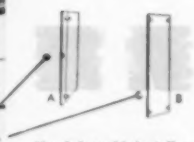
(Continued on page 174)

*Lever Brothers, New York.

Call a FIAT representative on TOILET COMPARTMENT problems

There's a FIAT representative near you—available on short notice. He has the answers to specification and installation problems that may help you . . . save you time—save your clients money.





Here's how this installation problem was solved

Large concrete window base presented difficulty. Bottoms of filler panel A and end pilaster were cut to fit diagonal slope of base. Room dimension was too short for six compartments; too long for five. Filler Panel B was added, creating neat appearance

COMPARE FIAT ON THESE POINTS

ADAPTABILITY
APPEARANCE
QUALITY
PRICE
DELIVERY

WHEN YOU SPECIFY FIAT, YOU SPECIFY QUALITY

MADE BY FIAT
FIRST IN SHOWERS

TOILET COMPARTMENTS
DRESSING COMPARTMENTS
HOSPITAL CUBICLES
PRESDWOOD COMPARTMENTS*

*Being used extensively for Army and Navy installations. Catalog on request.

All metal compartments are made of stretcher-leveled furniture steel, cold rolled or galvanized bonderized . . . laminated filler cemented in place under pressure. Hardware and connections supplied. Compartments are finished with a baked-on primer coat and two coats of baked-on enamel in a choice of eight colors.

SEE SWEET'S 22b/Fi ARCHITECTURAL

. . . for detailed compartment information and the address of your nearest FIAT representative.

FIAT METAL MANUFACTURING COMPANY

FIAT

THREE COMPLETE PLANTS—ECONOMY • CONVENIENCE • SERVICE

Long Island City 1 New York

Franklin Park, Ill. (Chicago Suburb)

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In Canada: FIAT COMPARTMENTS are made by Porcelain and Metal Products, Ltd., Orillia, Ontario

Cut drafting costs... Get better prints...

with Kodagraph Reproduction Materials... created for use in your present equipment

DRAFTING COSTS go down when you use Kodagraph Reproduction Materials to protect valuable drawings from wear and tear... to reclaim old, soiled, faded originals... to revise or combine drawings... to copy prints.

And the legibility of your direct-process prints or blueprints goes *up* when you use Kodagraph reproductions of your drawings in print-making. For Kodagraph Materials are silver sensitized, photographic... have the ability to intensify weak detail... step up contrast... drop out stains, creases. And they pass on this improved quality to the final prints.

If you have a blueprint or direct-process machine or vacuum frame

You can produce *positive photographic intermediates directly* from your engineering drawings by reproducing them on any one of four types of Kodagraph *Autopositive* Materials. To do the job—simply expose in your present equipment... and process in standard photographic solutions. No negative step. No darkroom handling—a fast, convenient room-light operation all the way.

1. **Kodagraph Autopositive Paper Extra Thin**—the all-purpose intermediate material for everyday use—gives you intermediates on a durable, white paper base. *Intermediates* which will turn out crisp, clean blueprints and direct-process prints time after time... which will retain their line density and sharpness... and which will remain *photo-lasting* in the files.

2. **Kodagraph Autopositive Paper Translucent...** has an exceptionally durable and translucent paper base... and a print-back speed which is 30% faster than regular Autopositive—*an important advantage in large-volume print production.*

3. **Kodagraph Autopositive Film**—with its highly translucent Kodak safety film base—is especially valuable in reclaiming "hopelessly poor" tracings... and in reproducing extremely fine line detail. It is also widely used to reproduce catalog pages, etc., including half-tone illustrations.

4. **Kodagraph Autopositive Cloth**—is recommended for producing the most durable prints (nearly exact in scale) from drawings in good condition. Its base is white fabric—tough, crease-resistant, highly translucent.

Kodagraph Repro-Negative Paper, which is processed in the same manner as the Autopositive Materials and with the same speed and convenience, enables you to produce positive intermediates directly from blueprints, Van Dykes, and other negative "originals."

If you have any type of contact photocopying machine, you can get negative and positive reproductions of improved quality at lower cost with *Kodagraph Contact Paper.* Its high-contrast photographic emulsion produces photocopies which are easier to read . . . with dense photographic blacks, clean whites. And its extremely wide latitude and amazing uniformity end the need for split-second timing and trial-and-error testing.

Kodagraph Contact Cloth, with an extremely durable, translucent base and with similar emulsion characteristics, is widely used to produce long-lasting second originals from paper negatives. (Unwanted design detail on these negatives can be blocked out before printing.)

If you have an enlarger, projection printer, or process camera, Kodagraph Projection Papers will give you sharp, clean reproductions at any scale – dense photographic blacks, sparkling whites on a durable, Kodak-made paper base. Just the papers you need for reproducing your microfilm and other reduced-scale negatives!

Kodagraph Projection Paper can be printed at high speeds and processed under comparatively bright workroom light. *Kodagraph Fast Projection Paper* can be printed at highest speeds but must be processed under low illumination. *Kodagraph Projection Cloth* is the ideal material for producing extremely durable and fast-printing positive intermediates from reduced-scale negatives.

Increase protection . . . save 98% in filing space with Kodagraph Micro-File equipment. The advantages of modern microfilming are yours *at surprisingly low cost* with Kodagraph Micro-File equipment.

Whether your engineering department be large or small, you will find a precision-built, economical microfilming unit just right for your requirements. One that will record your valuable drawings with photographic accuracy and completeness on *Kodagraph Micro-File Film*—instantaneously . . . for a few cents apiece.

Kodagraph Film Readers give you fast, convenient reference . . . with 100% legibility. *And the Kodagraph Enlarger* allows you to produce facsimile prints in the desired size quickly and economically from your microfilm negatives. *A complete line*—developed and manufactured by Kodak for the utmost precision, convenience, and economy in your microfilming.

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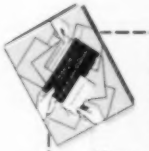
For short cuts, savings, protection . . . in drafting and engineering

Write today for a free copy of "Modern Drawing and Document Reproduction." It gives complete details on the revolutionary line of Kodagraph Reproduction Materials, which you, or your local blueprinter, can process *conveniently, economically.* Also many important facts on Kodagraph Micro-File equipment.



MAIL COUPON FOR FREE BOOKLET

EASTMAN KODAK COMPANY
Industrial Photographic Division, Rochester 4, N. Y.

94

Gentlemen: Please send me a copy of your illustrated booklet giving the facts on Kodagraph Reproduction Products.

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Company _____

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City _____ Zone _____ State _____

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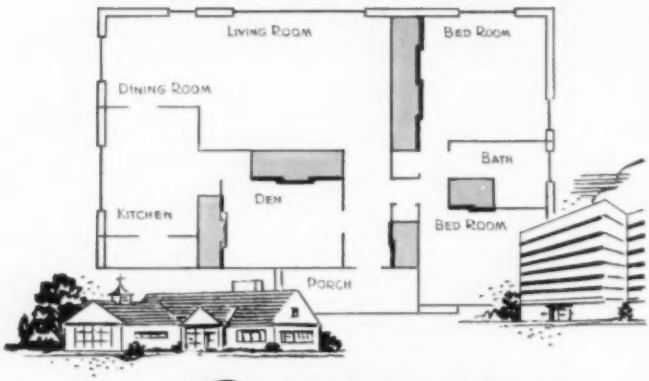
TRADE-MARK

All This Storage Space

at an actual Savings

in construction costs!



GLIDE-ALL
Sliding Doors

PROVEN in hundreds of large apartments—in hundreds of thousands of small, medium and luxurious homes!

Architects and builders throughout the nation are adding sales appeal and saving money with beautiful, modern Glide-All Sliding Doors.

There are many reasons why Glide-All is the preferred sliding door. *First,* the low initial cost. *Second,* the ease and simplicity of installation combined with a substantial savings in construction costs. *Third,* Glide-All's floor-to-ceiling height allows extra storage space, eliminates studding, framing and plastering. *Fourth,* the smooth, quiet, dependable operation for years of trouble-free service. *Fifth,* Glide-All's decorative versatility. The attractive Tempered Presdwood finish may be left natural or may be wallpapered, painted or finished to harmonize with any room decor.

Get the facts on Glide-All Sliding Doors today. Write for A.I.A. Bulletin No. 17-D, containing complete details and specifications.

Glide-All Sliding Doors are a product of

WOODALL INDUSTRIES INC.

DETROIT 34, MICHIGAN

and are manufactured in the following Woodall Plants:
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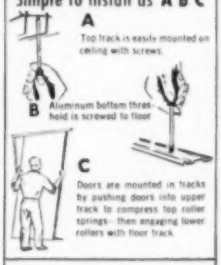
Laurel, Miss., P.O. Box 673—New York, Glen Cove Rd., Mineola, N.Y.
San Francisco, 1970 Carroll Ave.
Address requests to plant nearest you

Simple to install as A B C


A
Top track is easily mounted on ceiling with screws.
B
Aluminum bottom threshold is screwed to floor
C
Doors are mounted in tracks by pushing doors into upper track to compress top roller springs—then engaging lower rollers with floor track

HAVE YOU SEEN LAMIDALL®

• Here's another Woodall Product to add beauty and economy to your buildings. It's the new genuine plastic laminate for walls and top surfaces, in 1/16" thick panels—low in cost—easy to install—easy to maintain. Write for Free Samples and Literature.

out of school

(Continued from page 171)

tice! By the way, are you handicapped by previous teaching experience?"

I had to admit that I was—some twelve years of it. The Dean shook his head.

"The students won't like it. They are used to practicing architects without teaching experience or training as critics. We change critics at Theleme every week. The very best known architects in the country are on our lists and they prove a very real attraction and keep our enrollment way up. You may have seen our bulletin advertising our courses. In it we have pictures of our critics, their wives, and of their best buildings. We have more names than any other school in the country. It is a very good system too because the boys by looking in the architectural magazines can judge well in advance what the critic likes. This saves time, while educating the student by stimulating him to do research in the periodicals."

"That is going to constitute a problem," I said. "I have no recent buildings to my credit. I am sort of an educator and student of architecture and city planning at present. There would be great difficulty in finding photographs of my work anywhere. I don't think I could fit into your system too easily."

"Well, it is something to worry about," said the Dean, checking on his wrist watch to see how much longer the laundry needed, "but we do pride ourselves on our flexibility. Perhaps you might prove a challenge to the boys. They would really have to guess hard to find out what it is you like. It would mean a kind of psychological research which, if you are willing to be subjected to it, could be most stimulating."

"I wouldn't mind that so much," I said, "but why do the boys have to find out what I like?"

The Dean looked at me in astonishment. "That isn't a serious question, is it? How else is a student to get the most out of a critic? After all, architecture is a personal art. If a student is to learn from the practitioner, he must study everything the man has done. He gains thereby a vocabulary—an alphabet of his teacher's design skills. By continuing to change our teachers we assist in the enlarging of this vocabulary. It is a practical, simple, and obvious pedagogical system."

"Is it a system or is it an expedient?" I asked, not meaning to be critical—just for my own information.

The Dean looked injured. "That is obviously a double-barreled question, and I see no need

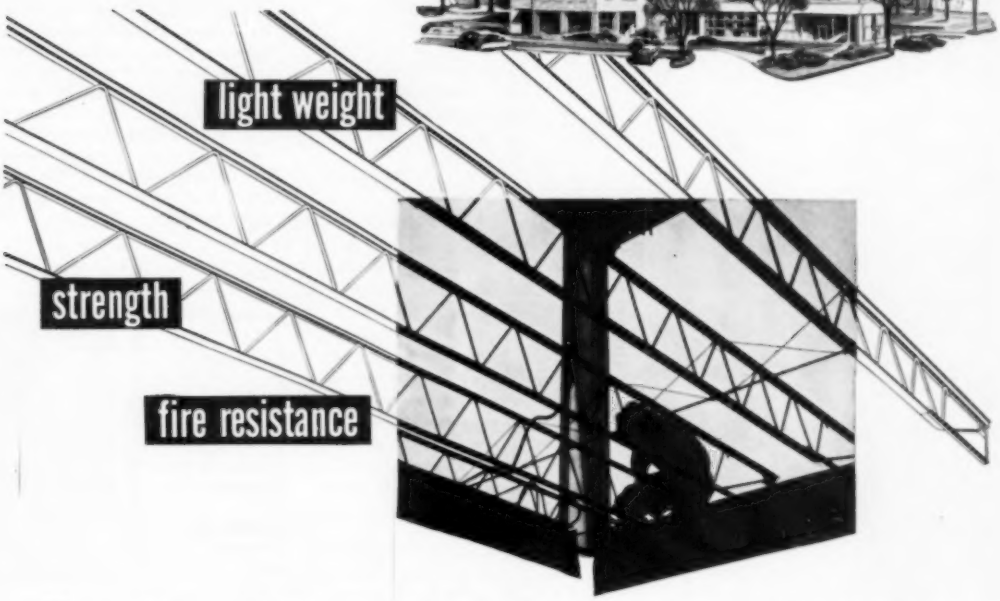
(Continued on page 176)

City Zone State

Kodak
TRADE-MARK

Architect Henry Sprott Long of Long & Gatling says:

"We specified Truscon "O-T" Steel Joists for the Highland Tower Apartment Building to assure...



Hundreds of structures such as the Highland Tower Apartments in Birmingham, Alabama, indicate the trend toward lower cost per square foot construction while assuring adequate strength and safety with Truscon "O-T" Steel Joists.

Light Weight. The light weight of Truscon "O-T" Steel Joist construction lessens the time and labor required for erection and also saves materials in the supporting framework and foundations. Every detail of joists and attachments has been perfected by practical experience to simplify installation and assure dependable results.

Strength. Wide, specially formed members for top and bottom chords impart stiffness to Truscon "O-T" Joists and keep them true to line. The continuous steel web member, of uniform diameter throughout its entire length, is securely welded to the chords by means of high pressure electric automatic welding.

Fire Resistance. Fire tests prove that ¾ inch of cement or gypsum ceiling plaster protects Truscon "O-T" Open Truss Steel Joist Construction against high temperatures. The majority of insurance rating bureaus have recognized the merits of this construction and have accordingly given it a first-class fireproof classification.

See SWEET'S for complete specifications on Truscon "O-T" Open Truss Steel Joists. Write for illustrated literature describing the entire line of Truscon Steel Building Products.

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TRUSCON a name you can build on

MARS LUMOGRAPH *Imported* DRAWING LEADS *cost no more!*

Each lead is so black, dense, and opaque that inking in is not necessary. No flaking or smudging. Better reproductions.

Leads are accurately graded and plainly marked as to degree. Each lead has a removable metal cap to prevent lead from sliding out of pencil. Metal clutch holds securely as leads are ribbed for better gripping.

For economy through quality, use #1904 MARS LUMOGRAPH imported pencil leads. 18 degrees of hardness from EXB to 9H. 60¢ a box of 6. Quantity discounts. At your dealer's or write us. Try #1018 Mars Lumograph Artist Pencil with the special sharpener cap—$1.00. Also quantity discounts.

J. S. STAEDTLER, INC.
53 WORTH STREET
NEW YORK 13, N.Y.

out of school

(Continued from page 174)

to answer it. The visiting critics have been enthusiastic about the system for years. One of them said to me recently, 'I can hardly keep ahead of the students. They know everything about my work. I really enjoy sitting down over the boards with them and debating design with them.'"

"Do you choose your critics by any sequence or do you fit them into a selected set of problems and dovetail them with other courses in construction, theory, etc.?" I asked.

"Our system of design training has proven by the fine quality of student work that it does not need to be 'integrated.' Our critics like their independence of the more academic and less realistic part of our curriculum. And we occasionally introduce our visiting architects to the regular faculty at a faculty club lunch."

"Well, if you think I might fit in, I'll be glad to try my hand at your system," I said. "Do you want me to sketch out a problem in advance? If so, will you be kind enough to send me a list of subjects in sequence for the year so that I can see where to fit in?"

"Oh, that won't be necessary. We do not like to routinize things to that degree at Theleme. There'll be plenty of time to work up a problem after you arrive. Just leave it to the students. They'll tell you what they want . . . "

At this point there was a violent death rattle in the Dean's washing machine—and his laundry was done.

"Well, it was fun seeing you," he said, as he bundled it up. "I'll have to get back to the house for cocktails before I iron my collars. I can roll up my sleeves and save ironing the cuffs. I'll send you a letter, later, giving you an official invite. And I do hope you will try to conform, at least for once. Cheerio!"

I look forward to a return visit to Theleme with great pleasure.

●

To revert to my vacation trip, the most conspicuous new architecture of our touring day, and the most sought after come late afternoon, is the tourist camp or motel. Its design, if it can be called such, is a never-ending wonder. First, one takes a bulldozer, dynamite and other lethal weapons, and completely clears a space in a virgin forest, alongside the road. Then having prepared the soil, one plants sugar lumps of clapboard or insulating board, with red or white roofs, in rows equally spaced. Then one places in front, in the middle, a filling station and office, and

(Continued on page 178)

Sedgwick DUMB WAITER DOORS improve Dumb Waiter Service

Hoistway doors have a direct effect on the efficiency of the dumb waiter. Whether you need doors for electric or hand power dumb waiters or for the landing openings of conveyors, laundry or package chutes, or other types of floor-to-floor equipment, you can make sure of improving service by specifying a Sedgwick Door. Over half a century of experience in successful engineering, manufacturing and installing lies behind Sedgwick Dumb Waiter Doors and Sedgwick Dumb Waiters.

- DURABLE STEEL CONSTRUCTION
- OPERATE EASILY
- ENGINEERED BY VERTICAL TRANSPORTATION SPECIALISTS
- ENTIRE UNIT FACTORY ASSEMBLED
- UNDERWRITERS' LABEL WHEN REQUIRED

Bi-parting type

Also slide-up, slide-down or hinged types

Write for booklet PA-7 on Sedgwick Dumb Waiter Doors and complete line of Dumb Waiters and Elevators

Sedgwick MACHINE WORKS
164 WEST 15th ST., NEW YORK 11, N. Y.
Specialists in Vertical Transportation Since 1893

SOME OTHER SEDGWICK PRODUCTS:

GLASS that helps bottle up FIRE!

575 Madison Avenue Building, New York
Emery Roth and Sons, *Architects* • David Shuldiner, Inc., *Glaziers*

Mississippi Wire Glass Selected for Protection Qualities in Modern New York Building

The menace of fire is held in check in this outstanding new Manhattan structure by Mississippi Wire Glass.* Exterior windows are glazed with 25,000 square feet of this proven product which has so often helped to avert tragic and costly fire losses resulting from exposure through unwired glass. Mississippi's fine Polished Wire Glass not only serves to help hold fires within bounds of origin... it floods interiors with maximum daylight for easier seeing and better working conditions. Mississippi Wire Glass offers constant protection at minimum cost in doors, windows, skylights, corridors, fire escapes, vertical shafts and other places where fire or breakage protection is required.

Consider the record. Mississippi Wire Glass is the *original* wire glass upon which the Underwriter's Standard was based in 1899—the standard today by which others are judged. For over 50 years architects have specified Mississippi Wire Glass with confidence. Available everywhere from distributors of quality glass.

*Approved Fire Retardant No. 32

SEE OUR CATALOG IN SWEET'S

**See our catalog in Sweet's.
Send for Catalog No. 52.
Free samples on request.**

Polished Misco Wire Glass combines approved protection with modern beauty.

Polished Wire Glass by Mississippi, approved fire safeguard, helps confine fires.

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1/10th of a mile long
with 1 filling!

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FOUNTAIN PEN
WITH INTERCHANGEABLE NIBS

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Saves thousands of time-wasting pen filling operations for the artist or draftsman — insures uniform thickness of line from hairline to 3/8" thick. Ideal for lettering, freehand drawing, technical drawing, sketching, or stenciling with the interchangeable nibs. Graphos uses any drawing ink, black or colored. Handles exactly like any drawing pen—beautifully balanced, light-touch. Time-tested — thousands in use in leading drafting rooms and art studios all over the world.

Ask your dealer — or write for illustrated booklets

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NEW YORK 16, N. Y.

CLEAN, UNBROKEN LINES
WHEN YOU DRAW WITH

Pelican WATERPROOF DRAWING INKS

Yes, even fine lines are obtained without breaks and without running with these superb inks backed by 112 years of quality manufacture. Absolutely waterproof; free-flowing; will not dry in ruling pen. Intense, opaque black and 19 clear, brilliant colors, blendable and dilutable. In 1 oz. bottles, handy cartridges and larger containers.

out of school

(Continued on page 176)

flanks the ensemble for five miles in all directions with signs tacked to trees, advertising the comforts and conveniences of home. This all-pervading architecture seems to be accepted by the American public without a murmur. It is part of the rapidly developing blight which is racing along our highways almost as fast as the automobile itself.

Was it for this that our forefathers pioneered this wilderness? Is this the American dream? Let no one gainsay the owner's right to earn his living. Let no one for a moment doubt the utility of these projects in our motor age. They are a necessary adjunct to our travel, our wanderlust. But who can justify for one moment this hideous destruction of our birthright and this irreparable damage to our souls? And why, oh why, is the American public so completely impervious to these sights? And where are the architects and planners? Or isn't any of this their business?

NOTICES

credit omitted

Credit to HOWARD T. FISHER & ASSOCIATES of Chicago was omitted in the advertisement for BRASCO MANUFACTURING COMPANY which appeared in June 1952 P/A (Page 57).

The advertisement listed Holabird & Root & Burgee as Architects for the Evergreen Park Plaza Shopping Center; Sidney H. Morris & Associates as Architects for the Lincoln Village Shopping Center.

Howard T. Fisher & Associates should also have been credited as Associated Architects and Engineers for both projects. The shopping centers and all three architectural organizations mentioned are located in Chicago.

new firm

Announcement is made of the formation of "SCOPE: Interiors," an organization for complete interior design service. MICHAEL M. KANE, A.I.A., will be consulting architect. The work will be entirely in the contemporary idiom and cover all fields of interiors—commercial, industrial, apartment houses, etc. Headquarters will be located at 12381 Cedar Rd., Cleveland Heights 6, Ohio.

(Continued on page 180)

HERE IS THE
NEWEST IN
PLASTERING
ACCESSORIES

Knapp
No. 18
PARTITION CAP
One-piece Construction!

The construction of low-cost housing, both residential and apartment, will benefit by the use of this Knapp No. 18 Partition Cap. It is designed for use with two inch partition wall systems that are characteristic of new housing programs.

Partition Cap No. 18 is used most efficiently for case openings, free standing partitions and stair rail caps . . . with these big advantages:

- one-piece construction (no welds to break loose)
- all butt joints even and smooth

. . . resulting in a better job at lower cost

METAL TRIM BROCHURE

Do you have your copy of the Knapp Metal Trim Brochure? This useful "package" contains our complete catalog, full size detail drawings of the various trim sections, and a set of specification sheets for all of the standard Knapp products. Ask your Knapp representative for your copy, or write Dept. PA-1052.

Knapp METAL TRIM
MANUFACTURERS OF QUALITY METAL TRIM SINCE 1905
KNAPP BROTHERS MFG. CO.
CINCINNATI 16, OHIO

When people see in ...more come in... and SPEND!

Eddy Harth, Beverly Hills, Calif.
Architect: Paul Laszlo, Beverly Hills

That display is necessary in order to move merchandise is axiomatic in the retail business.

That's why the Visual Front is virtually a *must* for retail store design. Most retailers can no longer afford storefronts that are visual barriers. A Visual Front transforms the entire store into a display case.

When you design a Visual Front you have at your disposal in Libbey·Owens·Ford materials all these types of glass:

- L·O·F ¼" Polished Plate Glass
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- 1" *Thermopane** Insulating Glass
- *Vitrolite**, colorful structural glass
- *Tuf-flex** Doors—to open up entrances
- Mirrors of L·O·F quality plate glass for interior decoration
- Blue Ridge *Patterned Glass* for interior partitions.

These are all available, along with storefront metal and hardware, from L·O·F Distributors and Dealers nationwide.

Send the coupon for your free copy of our booklet on Visual Fronts, and for the name of the L·O·F supplier in your community. *9

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Send me your booklet on Visual Fronts and the name of the nearest L·O·F Distributor.

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Address _____

City _____ Zone _____ State _____

NOTICES

heating and ventilating course

DEPARTMENT OF ARCHITECTURE AND DEPARTMENT OF ENGINEERING at the UNIVERSITY OF ILLINOIS announce for this fall a short course in "HEATING, VENTILATING, and AIR CONDITIONING." This course is to be directed specifically to architectural practitioners and it will be given Oct. 29-31. Inquiries may be addressed to: R. K. Newton, Supervisor, Engineering Extensions, 715 S. Wright St., Champaign, Ill.

regional A.I.A. conference

The regional conference of the A.I.A. for the NORTH CENTRAL STATES DISTRICT will be held Nov. 7 and 8, 1952, at the St. Paul Hotel, St. Paul, Minn.

for Increased Efficiency, Lower Maintenance Costs!

Whether you are replacing an old floor or laying a new one, permanently beautiful wood floors are assured when the Loxit Floor-Laying System is used—and it costs no more, often less than conventional wood floor-laying methods. When changes are required in commercial and industrial buildings in which the wood floors have been laid with the Loxit System the old flooring can be re-used without waste since a Loxit-laid floor is easy to take up and easy to re-lay. No inserts are required in the concrete slab. No wood sleepers. No nails and no adhesives. Write today for complete information.

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new practices, partnerships

FREDERICK S. CATES, Architect, announces opening of his office at 334 St. Paul St., Baltimore, Md.

Howe & Foster, Architects, announce that J. ROWLAND SNYDER has joined their partnership. The firm now is HOWE, FOSTER & SNYDER, 1636 Connecticut Ave., Washington 9, D. C.

EPHRAIM F. HUBERT, Architect, announces the opening of his office for practice of architecture, at 55 W. 42 St., New York, N. Y.

JOSEPH T. GEMMI, A.I.A., announces his association with FRANK A. AMODIO and WILLIAM C. MARTUCCI for practice of architecture, at 24 Walnut Street, Newark 2, N. J.

CHARLES HENRY CONRAD and GEORGE BAIN CUMMINGS announce that they have admitted to associateship their sons, CHARLES HENRY CONRAD, JR., Licensed Prof. Engineer, and JOHN BUTLER CUMMINGS, Registered Architect. The association will continue under the name of CONRAD & CUMMINGS, Associated Architects, at 99 Collier Street, Binghamton, N. Y.

HARRY MILTON GRIFFIN, Architect, announces partnership with WILLIAM RAWLE GOMON for practice of architecture under the name of GRIFFIN & GOMON, Architects, at Bldg. No. 1, Municipal Airport, Daytona Beach, Fla.

Announcement is made of the formation of a partnership under the name of CORROUGH & WONG for practice of architecture, at 2015 Pacific Ave., Stockton 4, Calif. The partners are DANA D. CORROUGH and WARREN C. T. WONG, both California certified architects.

LUCAS E. BANNON announces the association of DANIEL P. ANTINOZZI, R.A. and KARL SCHUMACHER for practice of architecture, at 261 Rock Rd., Glen Rock, N. J.

The partnership of FRANCIS C. PUCKEY & AUSTIN D. JENKINS has been dissolved as of April 30, 1952. AUSTIN D. JENKINS & CLAUDE W. THOMASON announce formation of a partnership for practice of architecture, at Room 2100, Wrigley Bldg., Chicago, Ill.

THE PEPPER ASSOCIATES, Architects, announce withdrawal of MAURICE FLETCHER as a partner. The firm includes F. F. SCHUMANN, A.I.A., Partner, THEODORE S. MILLER, A.I.A., Partner, HEYWARD M. PEPPER, Partner and FREDERICK W. CROWN, Associate with offices at 225 S. 15 St., Phila. 2, Pa.

LEVER HOUSE

combines safety and beauty with Weldwood® Fire Doors

The ultra-modern new **LEVER HOUSE**, in New York City is beautiful throughout. It is also smoothly *functional* and *safe* from top to bottom.

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it's the law

by Bernard Tomson

construction bids, private and public construction; withdrawal of bids on grounds of mistake (continued).

Last month's column discussed those elements which are essential, for a court to allow a bidder to withdraw his bid, as well as those cases disallowing such relief. This present column deals with those cases where the equitable relief of rescission was granted, as well as a discussion of the effect of legislation in this field.

withdrawal of bid allowed.

Where the Court has found the presence of one or more of the elements previously discussed, they have been inclined to grant to the bidder the relief he has requested. The result of these holdings have been to relieve a bidder, who has incorporated some error into his bid, from the onerous position of forfeiting his deposit or performance of the contract at a substantial loss. In *Kemper Const. Co. v. City of Los Angeles, 37 Cal. 2d 696, 235 P. 2d 7 (1951)*, the Supreme Court of California had before it for determination a claim of a bidder for cancellation of his bond, on the grounds of mistake in fact. The plaintiff had been preparing his bid until 2:00 a.m. of the last night prior to the deadline and during the preparation an error in excess of $300,000 was made. The bidder notified the city within hours after the bids were opened and prior to any award being made. In granting the relief requested, the Court stated:

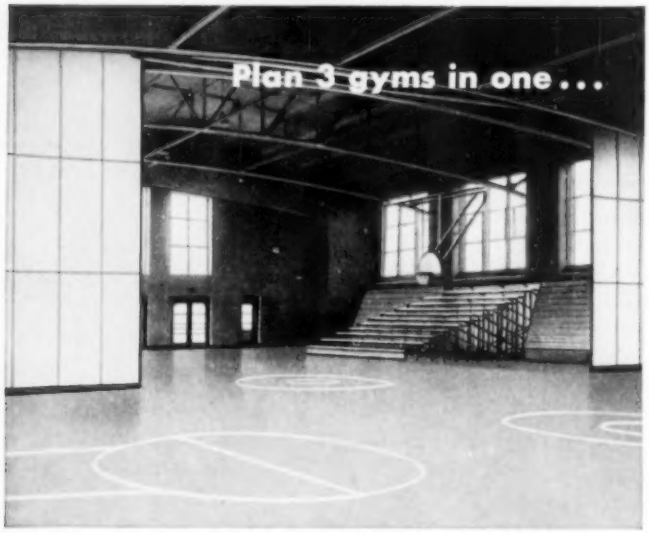
"The type of error here involved is one which will sometimes occur in the conduct of reasonable and cautious businessmen, and, under all the circumstances, we cannot say as a matter of law that it constituted a neglect of legal duty such as would bar the right to equitable relief.

"The evidence clearly supports the conclusion that it would be unconscionable to hold the company to its bid at the mistaken figure. The city had knowledge before the bid was accepted that the company had made a clerical error which resulted in the omission of an item amounting to nearly one-third of the amount intended to be bid, and, under all the circumstances, it appears that it would be unjust and unfair to permit the city to take advantage of the company's mistake. There is no reason for denying relief on the ground that the city cannot be restored to status quo. It had ample time in which to award the contract without readvertising, the contract was actually awarded to the next lowest bidder, and the city will not be heard to complain that it cannot be placed in status quo because it will not have the benefit of an inequitable bargain. Finally, the company gave notice promptly upon discovering the facts entitling it to rescind, and no offer of restoration was necessary because it had received nothing of value which it could restore. See *Rosemead Co. v. Shipley Co., 207 Cal. 414, 420-422, 278 P. 1038*. We are satisfied that all the requirements for rescission have been met."

In *School District of Scottsbluff v. Olson Constr. Co., 153 NEB. 451 45 N.W. 2d 164 (1950)*, the Supreme Court of Nebraska considered the error so fundamental that the municipality receiving the bid must have been aware of the mistake when the bid was considered. The court further found no negligence on the part of the bidder and reasonable notice on his part. The Court stated:

"The record establishes that the claimed error of $23,600 in the amount of the bid was a clerical mistake in tabulating and computing

(Continued on page 184)



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(Continued from page 182)

the bid. It was not an error of judgment in computing the quantity or cost of materials and labor. The mistake was unilateral, there being no allegations or evidence of mutual mistake. The school district contends that under such circumstances a bidder may not be relieved of his bid except where it is shown that the party receiving the bid knew or ought to have known, because of the amount of the bid or otherwise, that the bidder had made a mistake. While we think it could be said that the difference in the bids on the vocational agriculture and grandstand building was such as to indicate to the school district that a mistake had been made and thereby bring it within the rules applicable to mutual mistake, the bidder has the right under the facts shown by the record to withdraw its bid even though it was the result of unilateral error.

"The rule under such circumstances is: When the mistake is so fundamental in character that the minds of the parties have not, in fact, met, or where an unconscionable advantage has been gained by mere mistake, equity will intervene to prevent intolerable injustice where there has been no failure to exercise reasonable care on the part of the bidder and where no intervening rights have accrued. In the case before us the mistake was discovered and notice thereof given to the school district within four days after the opening of the sealed bids. It was a fundamental mistake as distinguished from an incidental one. While the bid of the Olson Construction Company had been accepted and the contract awarded to it, no contract had been entered into; it was wholly executory. Failure to use reasonable care on the part of the Olson Construction Company is not shown and rights of third persons had not intervened. The parties could have been placed in status quo at the time of the withdrawal of the bid."

The Supreme Court of Oregon, in *Rushlight Automatic Sprinkler Co. v. City of Portland, 189 Ore. 268, 219 P. 2d 732 (1950)*, also allowed a bidder to withdraw, where his error was the omission of the cost of steel for a construction project. The Court was of the opinion that the error was not due to any negligence on the part of the bidder and that he had given timely notice of error to the municipality. Furthermore, the Court felt the error was such as to apprise the municipality of the fact that a mistake had been made. The Court said:

"One who considers in the cloistered calm of appellate court chambers the mistake which the plaintiff made is prone to indict. Tranquil repose magnifies mistakes made by those who work under stress and strain. It is even inclined to condemn alacrity and insist upon such methodical care that error will be virtually eliminated. Courts, however, cannot create a Utopia and must deal with the realities of life. Contractors who compute estimates do not work under ideal conditions. The record shows that those who computed the plaintiff's bid

(Continued on page 186)

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(Continued from page 184)

were compelled to cope with conditions which afforded error opportunity to steal in. The trial judge who saw the witnesses, and who himself questioned some of them, recited in his findings that the mistake was excusable and not culpable. We know of no reason for rejecting that finding; we think that the evidence warrants it.

"We believe that it is manifest from the evidence that the difference between the plaintiff's bid and the next higher was so large that all of those concerned with the undertaking were rendered uneasy. The plaintiff's officers at once returned to their work sheets, fearing that they must have committed a mistake. The City Engineer, according to his own words, found the variation so great that it 'scared us to death.' A member of the Board of Engineers, who seemingly expressed himself in wary words, described the plaintiff's bid as 'a very low' one and termed the difference between it and the City's estimate 'a very decided difference.' The bid aroused suspicion in all minds. We think that the difference apprised the City that a mistake had probably occurred."

Knowledge of the error by the receiver of the bid is one element given a great deal of weight. The Supreme Court of Illinois distinguished earlier cases (discussed in previous article) and held the bidder entitled to rescission where there was actual knowledge of the error on the part of the city. The Court stated in *R. G. Bromagin & Co. v. City of Bloomington, 234 Ill. 114, 84 N.E. 700 (1908)*, as follows:

"The bid submitted showed by one item thereof that appellees proposed to furnish and lay 6020 feet of 16-inch pipe for a sum therein designated. This sum was less than they could purchase this pipe for, leaving out of consideration the expense of laying the same. The city engineer, who was a member of the board of local improvements, observed this fact, and acquainted the other members of the board therewith. It seems apparent, therefore, that the board of local improvements accepted the bid knowing that this mistake had been made. It is suggested that the board could not know but that appellees may have fixed this sum at less than its actual cost and fixed other items at a correspondingly high price so that upon the whole they would be able to realize a profit from doing the work at the total of the bid."

●

the effect of legislation on withdrawal of bids.

Statutes have been enacted to govern the conduct of the parties with regard to errors in bids for public construction. Such legislation in effect codified the existing rules of law with regard to this problem. They set forth the procedures to be followed with regard to the withdrawal of a bid, due to a mistake of fact.

The case of *Krasin v. Village of Almond, 233 Wis. 513, 290 N.W. 152 (1940)*, was decided, upon a statute then in force, regulating the procedure in the withdrawal of a bid. The statute[1] required immediate notice of error upon its discovery and the filing of proof that the error was not due to any negligence. The Court held that the bidder, having complied with the terms of the statute, could recover his deposit. The Court stated:

"The plaintiff furnished such evidence of complying with the statute as thus far stated by showing to the Village Board his final estimate sheet, which showed on its face that his mistake was in wrongly setting down thereon an '0' for a '6' in the thousand space of the total of a column of figures representing the cost of materials required for the work. This estimate sheet also showed on its face that this total was one of the items that made up the amount of the bid. The plaintiff on the day of the opening of the bids explained his mistake in detail to the Board. None of his statements in this respect was disputed. In showing just how his mistake occurred the plaintiff showed that it did not result from any carelessness in examining the plan and specifications or in conforming to the statute as thus far stated. The trial court considered, and so do we, that the plaintiff fully complied with the statute up to this point.

"The defendant also claims that the plaintiff cannot recover because of the closing part of subsec. (5) which reads: 'and in case of forfeiture (the bidder) shall not be entitled to

(Continued on page 188)

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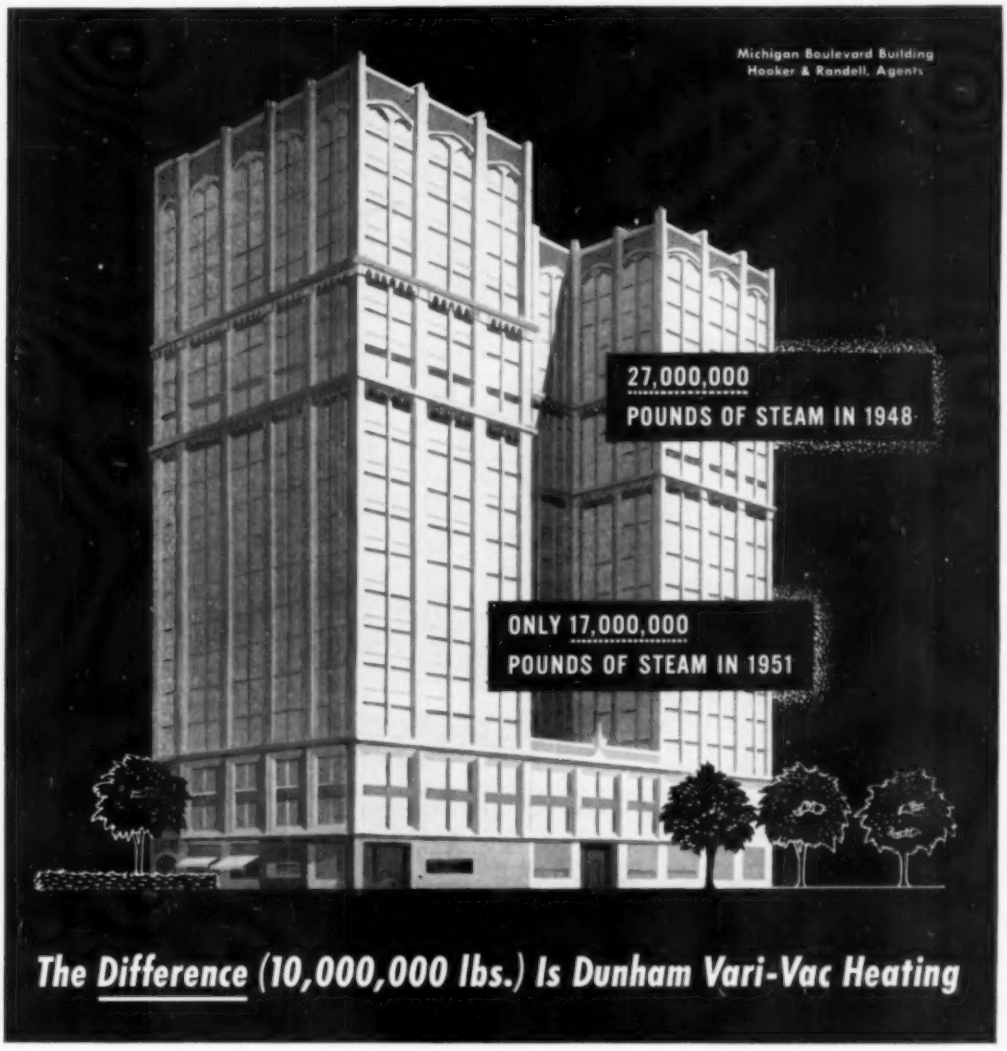
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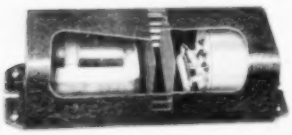

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(Continued from page 186)

recover the moneys or certified check forfeited as liquidated damages unless he shall prove before a court of competent jurisdiction, in an action brought for the recovery of the amount forfeited, that in making the mistake, error or omission he was free from carelessness, negligence or inexcusable neglect.' The three terms last above appearing as applied to the instant facts are synonymous. 'Carelessness' consists of the doing of some act or omitting to do some act. So as to negligence. The 'carelessness' or 'negligence' here involved, if any there was, consists of an omission to do some act. The 'neglect' involved, if any there was, consists of that same omission. The 'carelessness' or 'negligence' if any, was thus only 'neglect.' The only neglect that under the statute visits the penalty of forfeiture is 'inexcusable neglect.' Assuming that the legislature has power by its mere fiat to create a forfeiture by calling a penalty liquidated damages, a point which we do not here consider, unless the plaintiff's 'neglect,' if any there was, was 'inexcusable' there was no forfeiture under the language of subsec. (5) relied on as creating a forfeiture, and if such neglect did not create a forfeiture because it was excusable, neither did carelessness or negligence which consisted of the same thing as neglect."

The court was of the opinion that under the facts of this case, the bid, as corrected, should have been allowed to stand. The Court stated:

"Subsecs. (5) and (7) of the statute on which the defendant relies, so far as here material, are set out in the margin. Subsec. (5) is headed 'Corrections of Errors in Bids.' This heading manifestly contemplates that corrections of errors may be made in proper cases, and this would seem to imply that a bid when properly corrected may stand as a bid. Under this concept of the purpose of the statute, the Village should, under the facts found by the trial court, which are well supported by the evidence, have permitted substitution of the correct amount in the bid."

---

[1]*Sec. 66.29 '(5) Corrections of errors in bids. Whenever any person shall submit a bid or proposal for the performance of public work under any public contract to be let by the municipality, board, public body, or officer thereof, who shall claim mistake, omission, or error in preparing his bid, the said person shall, before the bids are opened, make known the fact that he has made an error, omission, or mistake, and in such case his bid shall be returned to him unopened and the said person shall not be entitled to bid upon the contract at hand unless the same is readvertised and relet upon such advertisement. In case any such person shall make an error or omission or mistake and shall discover the same after the bids are opened, he shall immediately and without delay give written notice and make known the fact of such mistake, omission, or error which has been committed and submit to the municipality, board, public body, or officers thereof, clear and satisfactory evidence of such mistake, omission, or error and that the same was not caused by any careless act or omission on his part in the exercise of ordinary care in examining the plans, specifications, and conforming with the provisions of this section, and in case of forfeiture shall not be entitled to recover the moneys or certified check forfeited as liquidated damages unless he shall prove before a court of competent jurisdiction in an action brought for the recovery of the amount forfeited, that in making the mistake, error, or omission, he was free from carelessness, negligence, or inexcusable neglect.*

'(7) On all contracts the bidder shall incorporate and make a part of his proposal for the doing of any work or labor or the furnishing of any material in or about any public work or contract of the municipality, a sworn statement that he has examined and carefully prepared his bid from the plans and specifications and has checked the same in detail before submitting the said proposal or bid to the municipality, board, department, or officer charged with the letting of bids, and also at the same time as a part of such said proposal, submit a full and complete list of all the subcontractors and the class of work to be performed by each.'

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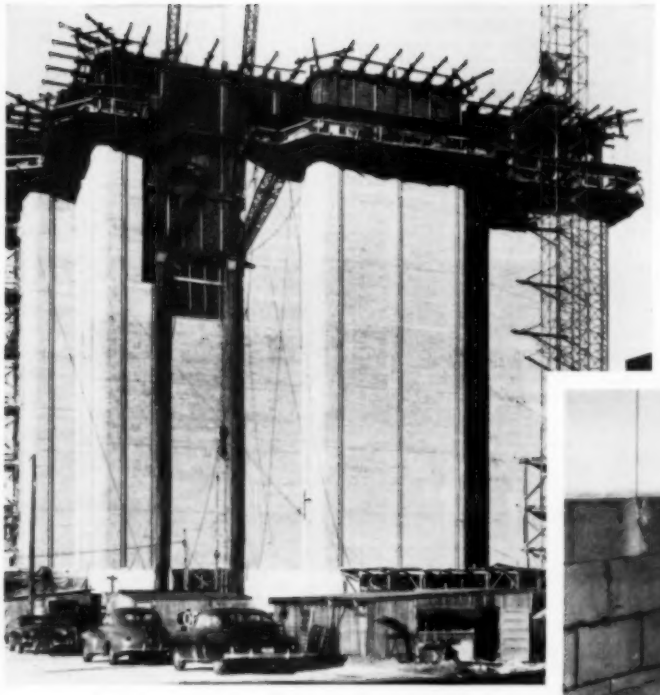

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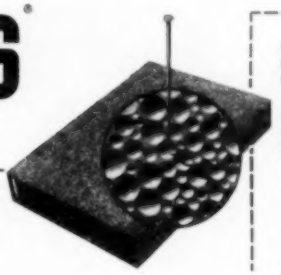

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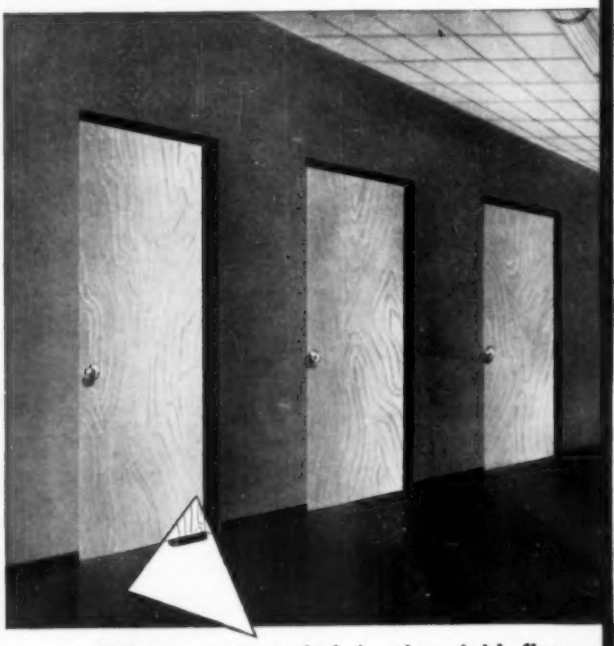

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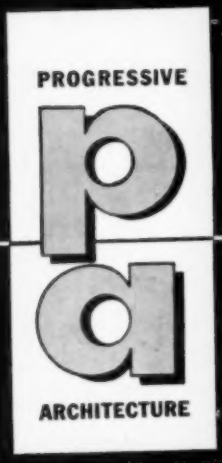

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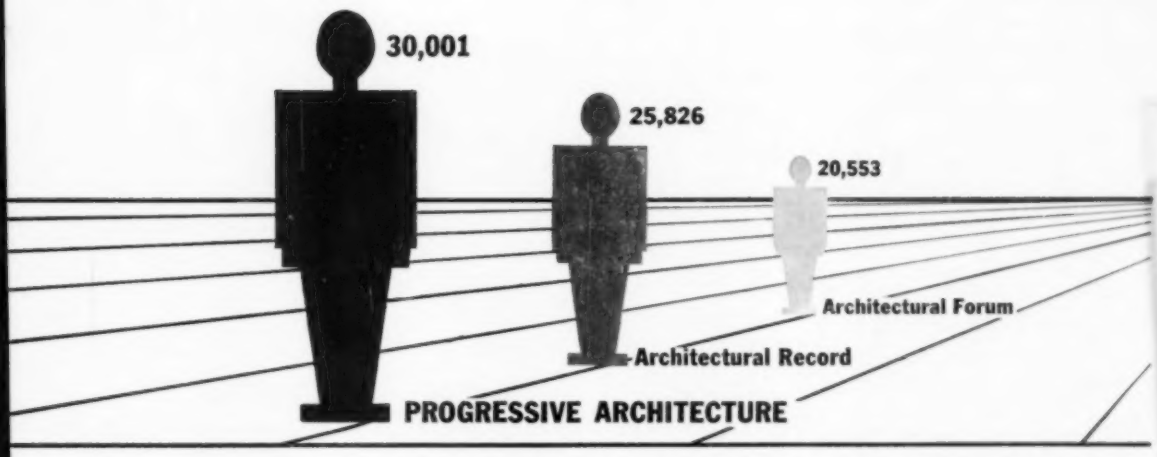

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	PROGRESSIVE ARCHITECTURE	Architectural Record	Architectural Forum
Architects	**14,640**	14,639	10,109
Engineers	**6,679**	6,651	4,281
Designers	**4,275**	2,359	3,257
Draftsmen	**4,407**	2,177	2,906
Total Professional Circulation	**30,001**	25,826	20,553

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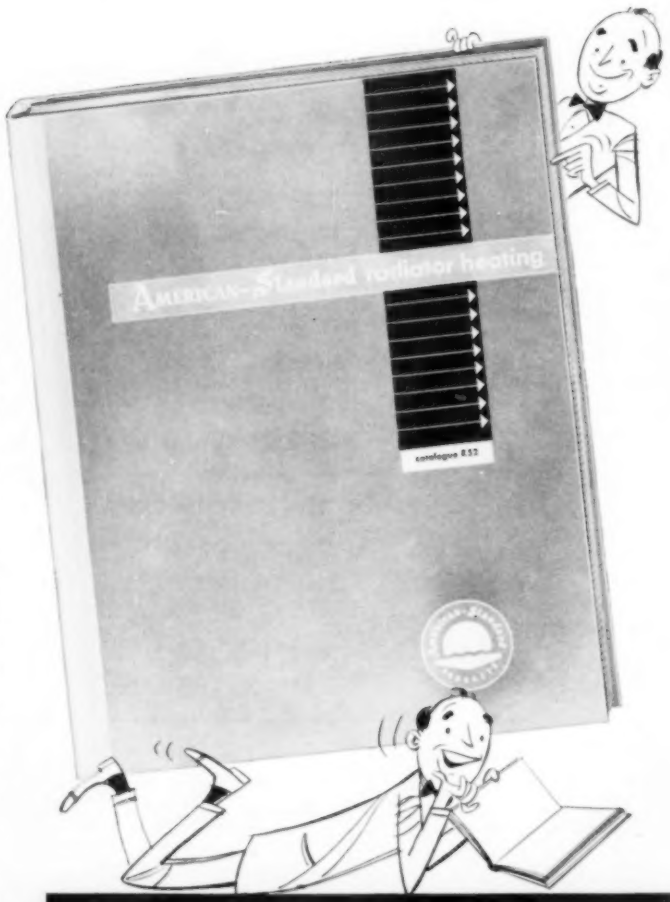

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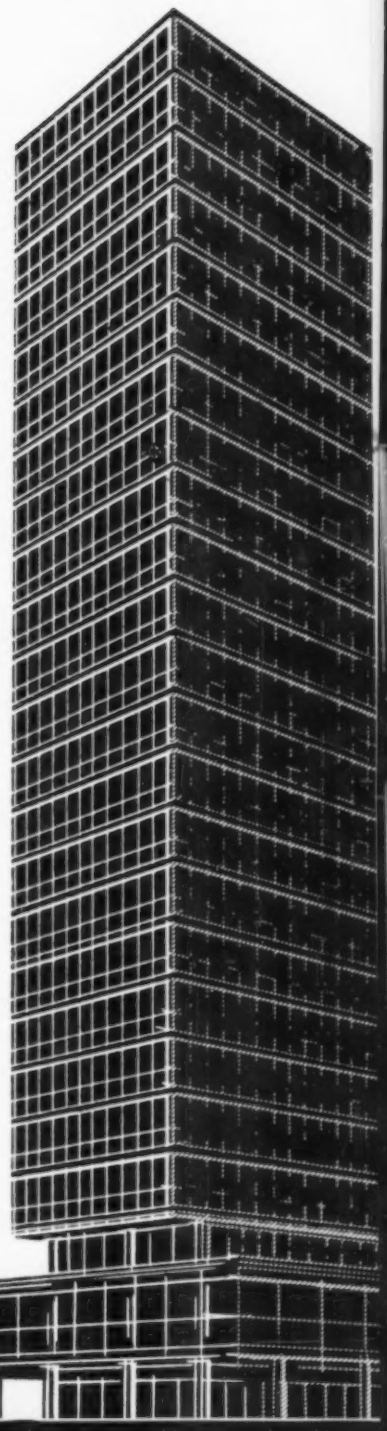

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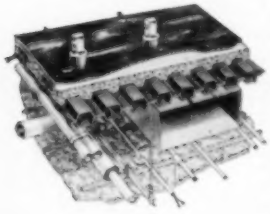

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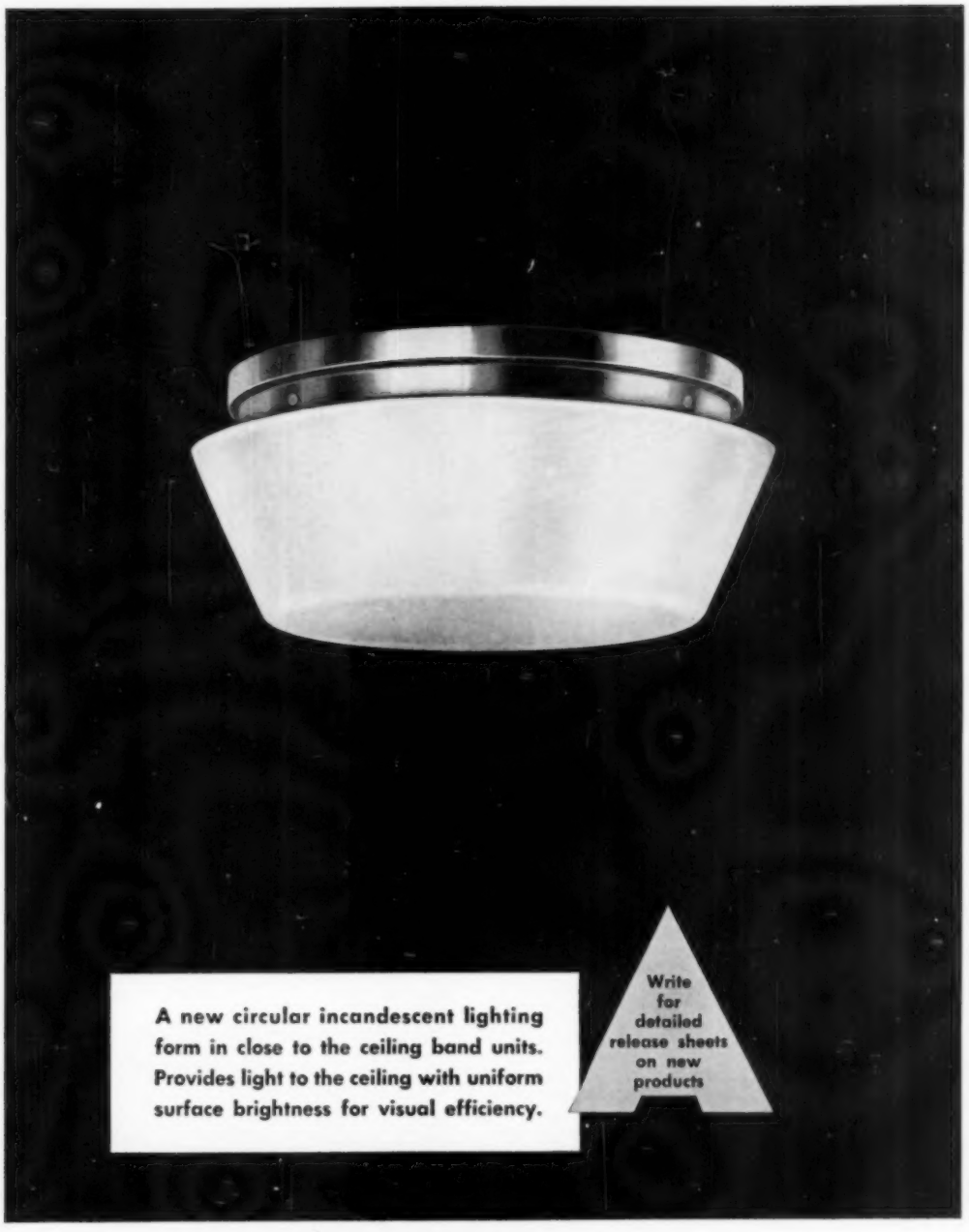
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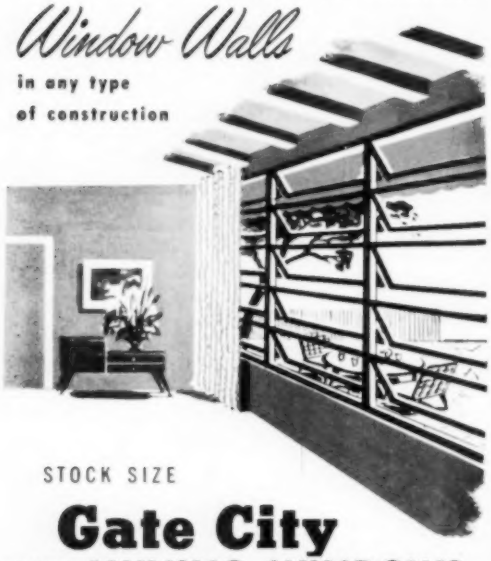

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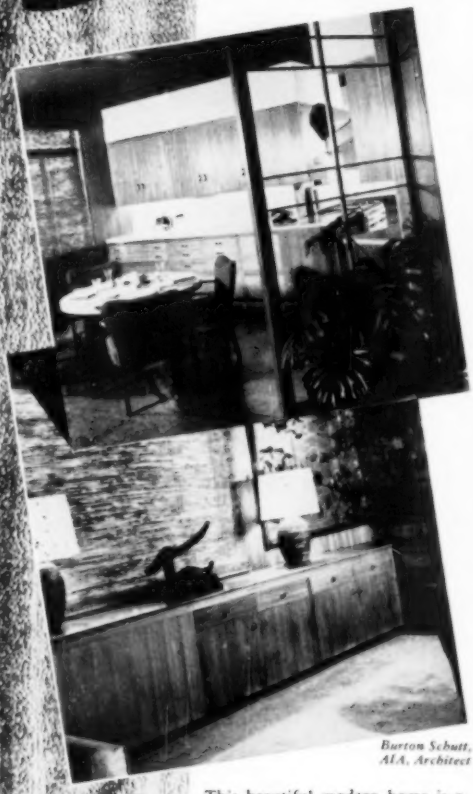

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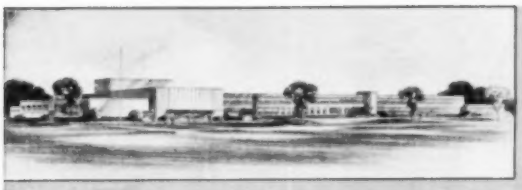

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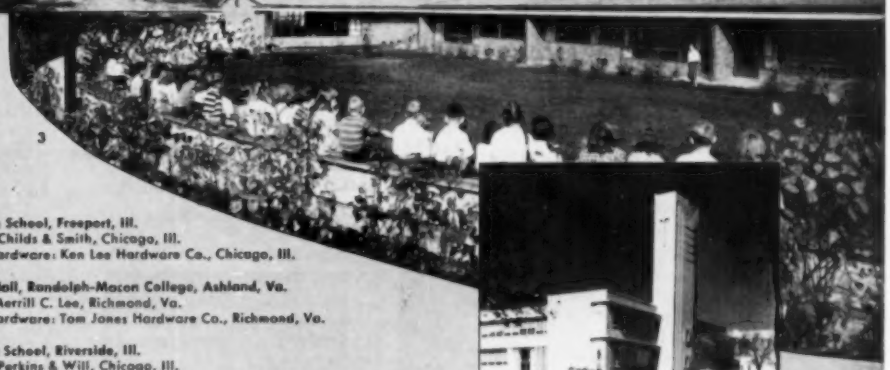

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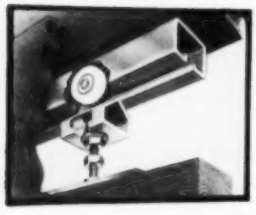

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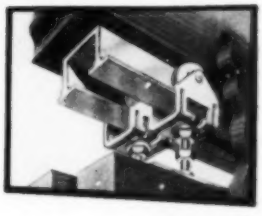

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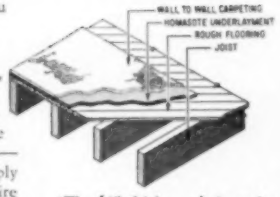

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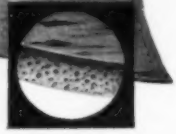

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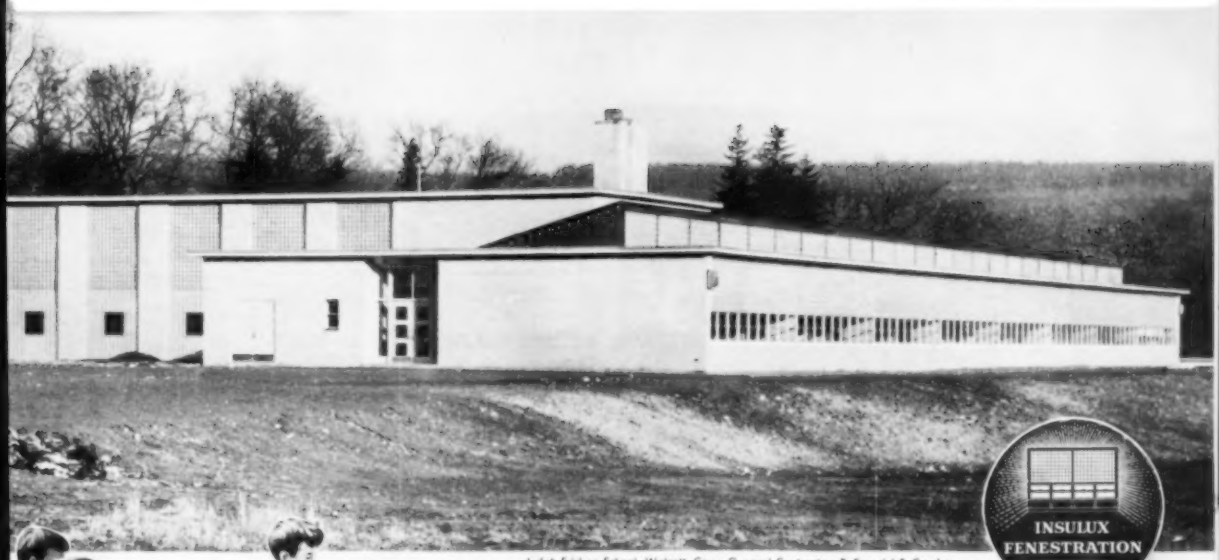

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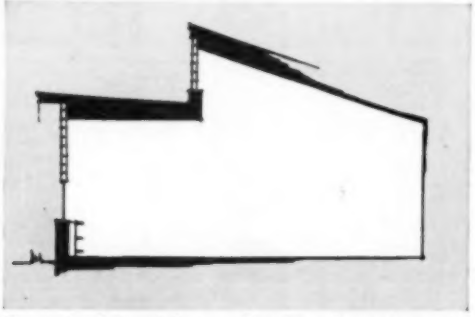

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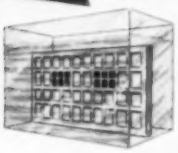

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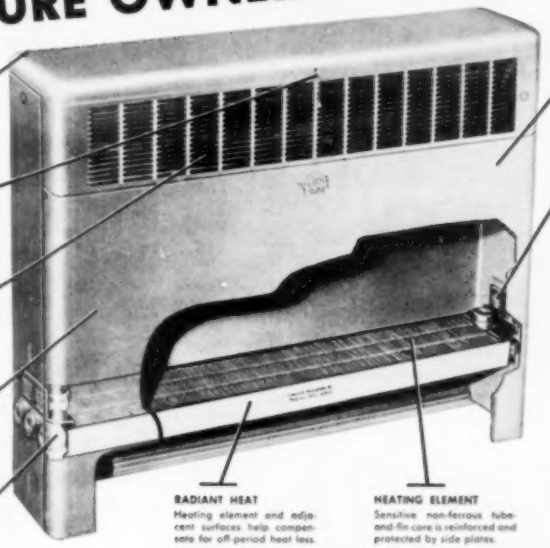

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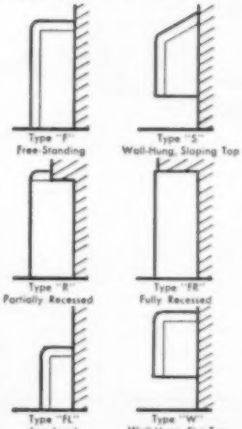

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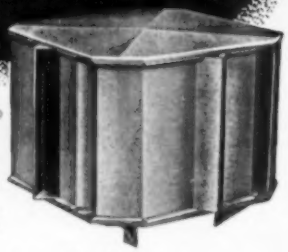

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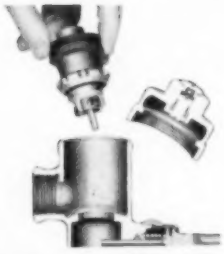

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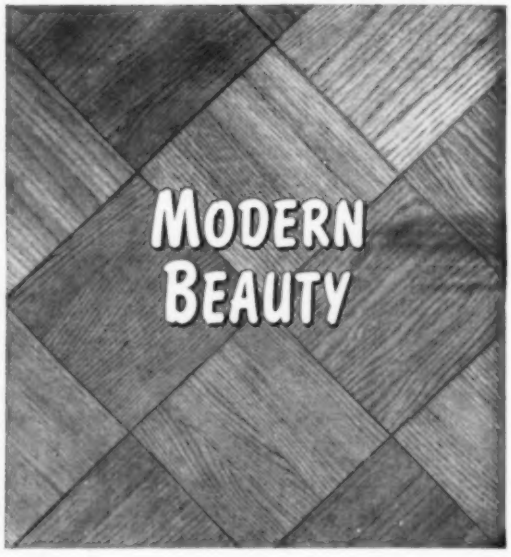

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Federal Building, 312 N. Spring St. Los Angeles. (Photo taken after severe earthquake of July 21, 1952.)
Designed by—**Public Buildings Administration.**
Constructed by— **Baruch Corporation and George A. Fuller Co.**
Plastering Contractor— **Jack Brown.**

This photo shows the maximum damage to plaster in Post Office workroom of Federal Building proving dependability of Steeltex Lath for reinforcing plaster walls and ceilings.

When plaster is applied to type A Steeltex Lath, it automatically forms a system of ribbed trusses giving exceptional strength and rigidity to the plaster similar to reinforced concrete.

Federal Building at Los Angeles Passes Test in Recent Earthquake

Only slight damage to plaster reinforced by Steeltex Lath proves soundness of original design

When the 22 story Los Angeles Federal Building was in the planning stage more than twenty years ago, the Public Buildings Administration of the U. S. Government, who designed the building, naturally wanted a structure that would withstand severe earthquakes. During the early planning stage in 1933 the disastrous Long Beach quake occurred. Facts gleaned from this severe quake caused the designers to revise their original plans, add 1500 tons of structural steel including Steeltex welded wire lath for better reinforcement of plaster ceilings and walls throughout the new building. The handsome building when completed in 1938 incorporated the most advanced ideas for resisting earthquakes.

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P.S.

Last month's P.S. ended rather abruptly, telling you that I had suddenly taken off on a trip to Europe. What had happened was this: I received a call one day from a representative of the Polish Embassy in Washington who extended an invitation from the Association of Architects of the Republic of Poland to attend an international architectural conference and "tour" of work being done in Poland. My first reaction was that this was an exciting idea, but that obviously it was impossible to go suddenly to that distant country (the tour was to start within less than two weeks). But then I got to thinking about it, and I talked it over with a number of people and decided that it would be very foolish *not* to go and see what was happening architecturally in a place that has become almost inaccessible to Americans. Ralph Walker, for instance, pointed out that since the A.I.A. would not at present send an official representative to Poland, it was all the more reasonable for an independent architecural journalist to see and report the new architecture of that country. When I inquired further and found that the invitation would be extended also to my wife, Katherine Morrow Ford, as a writer on architecture, we decided suddenly to go—if the State Department permitted. Actually, it was a week after we applied for passports before they were granted. I spent a final Friday in Washington, talking to several people in the State Department, and was given the passports with special validation for Poland at precisely 5:00 p.m. that day. We flew to Paris on Sunday, and then, with a slight delay, on to Warsaw.

The flight across Europe was beautiful, over land which seemed not much different in France, Germany, and Poland—strip farming, neat as a pin. We got to Warsaw about dinnertime and after going through customs and immigation (an easy task, going *in*) we were met by a most pleasant young man from some government cultural bureau, who drove us through streets of still wrecked buildings and helped us check into the Bristol Hotel—still pocked and scarred on the exterior, but decently refinished inside. We had our first introduction to Polish food—borscht, fish, and a delicious chicken dish—and to Polish vodka, which we found we both liked immensely. After dinner, we made a tour of the city which gave us a quick but rather full impression of the devastation that had been, the plans to reconstruct, and the accomplishments so far toward that goal.

Warsaw, you will remember, was very nearly completely destroyed (something between 85% and 90% wiped out) as a result of its strategic and symbolic importance during the war. The problems of replanning and reconstruction (which I will discuss in more detail later) were preceded by a question of whether to rebuild at all, on what has always been poor soil for construction, or whether to move the capital to a new site. Somewhat for emotional reasons, I gather, since Warsaw had become more than ever a national symbol (and some of the architects, such as Szymon Syrkus, had worked on plans for the new Warsaw even during the war, some in concentration camps), it was decided to go ahead on a broad scale, stage-by-stage plan. That first evening, we saw the principal new structures of the first three-year plan—bridges across the Vistula, carrying the main new arteries across to the Praga section; the "East-West," a through highway with overpasses and underpasses; the most fully completed street in the central city—Marsalkowska—opening into a central square lined with high-class apartments and attractive stores; several less expensive (and much more attractive) housing projects beginning to carry out the neighborhood concept on which the new city plan is based; and incidental structures such as a worker's rest house and a department store. We drove around the ghetto, which had been *completely* obliterated, on the rubble of which are now rapidly rising new housing structures.

The impressions of that evening—the still-remaining desolation of war, next to clean new buildings in startling contrast; neatness everywhere, with blooming flower boxes even in the standing portions of bombed-out buildings; engineering accomplishments of the first order; a plan already apparent in its outline; and finished architecture of a character, to our eyes, too pompous, too academic to be appropriate to the great new building task—those impressions remained, when we returned later to Warsaw for a further look.

●

Early the next morning we were met and taken to the airport for a one-hour flight to Krakow, to catch up with the architects from other countries, most of whom had arrived several days before us. A pleasant flight in what seemed to be a DC-3, but as we descended Katherine looked down and said, "I don't see any airstrip!" I replied, "Or, there must be, you just can't see it." There wasn't: we landed comfortably on a grass field! At the Hotel de France, we met the other visitors: 50 architects, town planners and architectural journalists from England, France, Holland, Belgium, the Scandinavian countries, Italy, South America, Iran, Syria, East and West Germany, Austria, Bulgaria, Rumania, Hungary, Checkoslovakia, Russia and Korea—and soon entered into the easy, friendly, personal and professional relationships which neither language difficulties nor political differences can obliterate. Helena Syrkus (whom we had met when she and Szymon visited the States in 1947) with her remarkable command of almost all languages, acted as principal interpreter. And we found that each language group had its own interpreter-guide. Katherine and I were introduced to the assembly formally at lunch that day—I as editor of *Propressive Pencil Points!*

In Krakow, we were given an exposition of the planning principles of that city and of an adjacent new town, Nova Huta, which is rising from the plains—and the next day we visited Nova Huta, itself. Its plan is similar to the new Warsaw scheme, in that it is based on neighborhood units, radiating from a central core which contains administrative and principal commercial structures. Close enough to be integrated with the Krakow plan, and with that wonderful old city as its cultural center, Nova Huta will be primarily a residential town for an ultimate 100,000 people. In three years, 12,000 dwelling units have been built (now occupied principally by construction workers) and schools, shopping centers, and clinics are going up. Utilities and the communication net are largely installed.

The over-all plan seemed to the assembled critics excellent, despite its rather Beaux-Artish axial symmetry. Densities are fairly low; contrast of three-story pitched roof buildings and five-story flat-roofed ones is pleasant. Within the neighborhood units, vistas are agreeable. We were interested in the concept of neighborhood self-containment obtained by placing small stores, schools, and nurseries inside the neighborhoods; used along with a concept of city *unification* reached by locating large stores on the periphery of the neighborhoods, for use by shoppers from any section. We examined the unit apartment plans and, by our standards, found them poor: circulation, orientation, free use of space, seemed not to have been considered. Of the final design of the buildings, more later.

Since the weekend was now upon us, we relaxed in an atmosphere of good fellowship and genial hospitality. Items: a tour

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of ancient Krakow, with its 9th Century gate, its medieval cathedral and its Renaissance Wavel castle; a close inspection of one of the most magnificent wood-carved polychrome altar pieces in existence (stolen by the Nazis, found and restored with the help of the American military); a trip to Zakapane, high in the Carpathians (once an expensive resort, now a worker's vacation center) with a two-stage cable-car trip to a mountain top on the Czech border. In that area we admired some of the most beautiful, unaffected wood-house architecture that we have seen anywhere: wide eaves, interesting roof-forms, structure fully apparent, wood used so that its natural weathering provided color and texture.

●

After an over-night train trip back to Warsaw, the business of the conference was resumed. First, we saw several buildings in a minute detail. A printing plant completed in 1950 (in my opinion, the only well designed modern building we were shown), where German presses and Russian machinery combined to make a huge establishment incorporating everything from rotary presses, letter-press equipment, rotogravure and polygraph presses for poster work, to an extensive bindery department; well planned, well built, well lighted. A school—secondary and high school combined—just finished; separate classrooms for boys and girls, seating 40, used continuously during the day in 6-hour shifts. Classroom orientation is east-west; windows are large, but not continuous, with 2'-6" sills; some bilateral lighting is attained through borrowed light from the corridors (single-loaded in this case, but not always so). The school seemed to me reasonably well planned, but not in any sense experimental or even very advanced in its concepts. As in all the buildings we saw, one recognizes the need to provide space quickly; one admires the speed and the devoted enthusiasm with which it is being done; one regrets (perhaps unrealistically) that it is based largely on design concepts that we consider out-dated.

That evening we paid a visit to Chopin's birthplace, preserved in a magnificent garden, and enjoyed a concert of Chopin music coming to us through an ivy-framed window, as we sat outside the cottage. Finally, we spent the better part of a day in an exposition and a critical discussion of the Plan for Warsaw. Sigalin, Warsaw Chief Architect (a young man who has come to the fore in recent years because of his drive, administrative ability and political understanding), introduced Skivenesky, an older man who is Head of the town-planning department of the Warsaw Planning Office. He gave us one of the most brilliant presentations of a city plan I have ever heard.

●

There is no space for detail here. Suffice to say that the problem whether to rebuild as rapidly as possible as the city was (the popular emotional urge) or to create a totally new city (the planner's opportunity) was resolved in a workable compromise—to reconstruct and build new at the same time, according to a plan fitted to stages—and first of all, to house the population returning to the city. The first three-year plan (or first half of a six-year plan) is now completed and its results are what we saw. Next will come a series of five-year plans, with the present scheme (modified as changing social and economic conditions require) scheduled to be completed in 1970.

The plan in general is like a hand; the palm the central city, largely rebuilt as it was but with wide east-west and north-south arteries cutting it and intersecting in a square to be dominated by a Palace of Culture, Soviet-designed and a "gift" from the U.S.S.R. The Vistula is the life-line and part of the central city lies to the east of the river—the old Praga section rebuilt. Radiating from the center are neighborhoods, to be surrounded by green. To the north and south, extensive park and play areas will be developed along the river. Industries lie on the out-skirts; workers, for the most part, live near their places of employment, but each neighborhood living area will house, as far as possible, all trades and professions.

It is the neighborhood town-planning concept developed with great understanding of the social problems it raises. The plan will be—is being—ruthlessly carried out. Reconstruction, additional razing, new building—to provide the superblocks and the green areas desired—is not, of course, restrained by any private ownership. Only one criticism was made, at that meeting, of the *planning* concept (political questions were carefully avoided) and that was of an apparent tendency to carry principal streets through a neighborhood, breaking them out into a central square surrounded by over-scaled public buildings. Max Lock, English town-planner, made the strongest plea against this, likening it to the engineer-planning tendency that Geddes had opposed, in India, suggesting instead pleasant squares scaled to human use and understanding. The defense was that the people, even in their local communities, must be given a sense of civic pride—and it is the belief of the Polish planners that an "official" type of architecture accomplishes this. Here, as in the discussion of esthetics, there was an obvious east-west difference of opinion.

●

The trip ended with a pleasant banquet and many toasts of professional brotherhood and hopes for further truly international meetings and seminars. Two bits of officialdom at the end marred the friendly atmosphere—neither the fault of our host-colleagues. Films (we had been given permission to photograph freely) were taken from us to be developed there. Since there are no facilities to develop Kodachrome in Poland, what they will do with our color films remains to be seen. And the final customs inspection was so thorough as to be unpleasant. So back to Paris, and some side-trips, which I will write about later, while we waited for passage home.

Two postscripts to this too-long report. Construction methods in Poland are still understandably primitive. Wall-bearing construction, using bricks made largely from the great mass of rubble that was the post-war Warsaw, has been developed as fully as posible. Brick-laying teams of three attain remarkable speed and efficiency. We were told many times that Poland "looks forward to" industrialization of the building industry and prefabrication of parts, but there is no apparent move in this direction yet.

Finally, on the question of esthetics, I shall report in another issue the arguments that were given us. Poland is following the Russian school of traditionalism—a classicism which is not far from the 18th and 19th Century Beaux-Arts concept of a late post-Renaissance. We had a lengthy explanation of this from Alexandre Vlassov, chief architect of Moscow, which I think is worth a full separate discussion.

So here we are, back. I want to end this report (written on the sundeck of the Liberté coming home) by thanking all my colleagues on P/A for picking up the many loose ends left and doing extra work through hot weather so that I could quickly take advantage of an unusual opportunity.

Thomas H. Creighton

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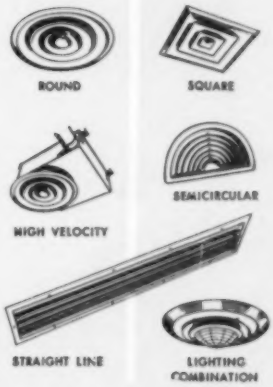

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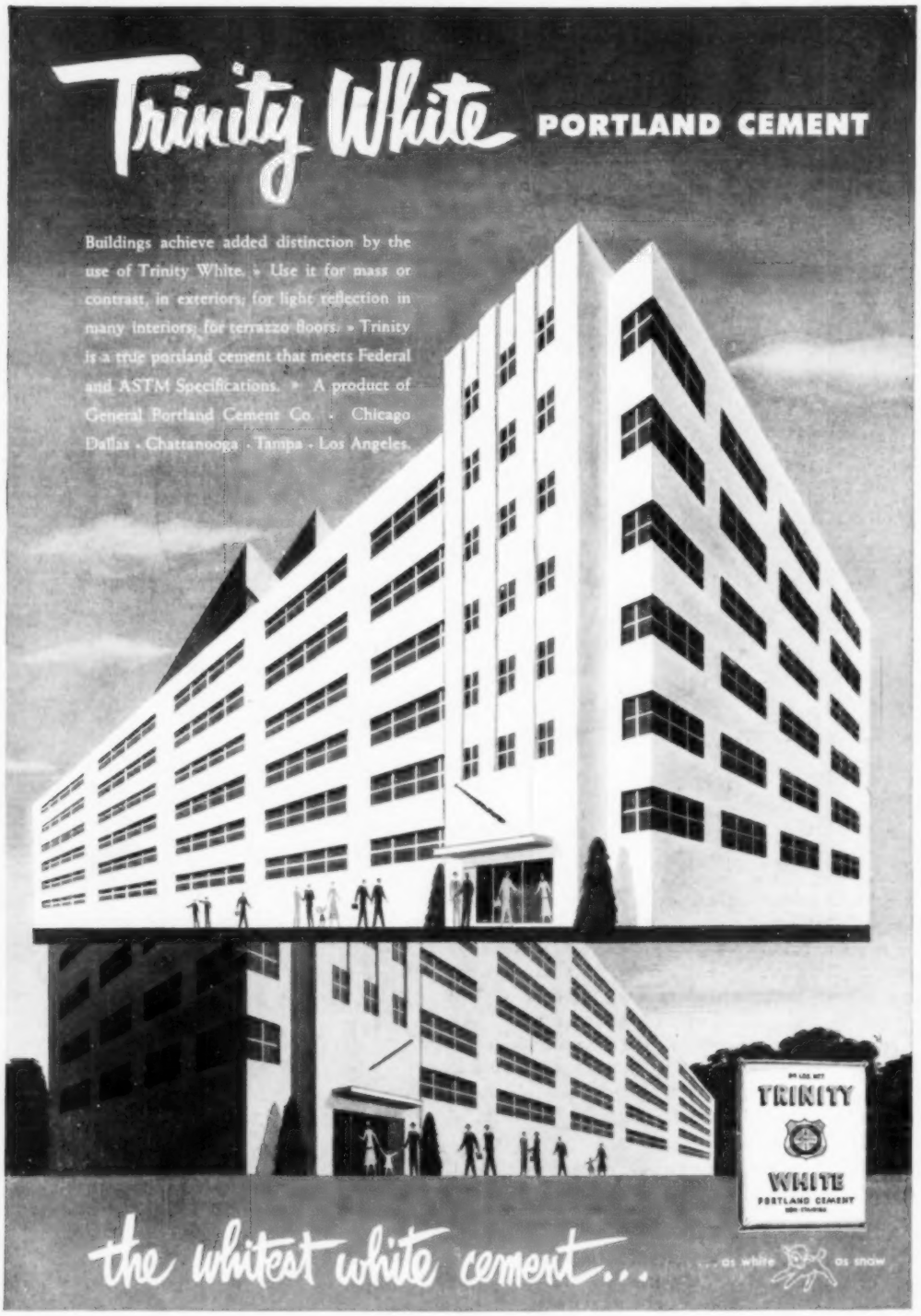
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